UNITED STATES DEPARTMENT OF COMMERCE
OFFICE OF TECHNICAL SERVICES
WASHINGTON 25, D. C.

TECHNICAL TRANSLATIONS

Volume 2 Number 2 Pages 99-168 July 17, 1959

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TRANSLATION MONTHLY.
1955-1958, Vols. 1-4, $5.00/volume

TRANSLATORS AND TRANSLATIONS: SERVICES AND SOURCES, ed. by Frances E. Kaiser. 1959, 60p.
Order from Special Libraries Association, 31 East 10th St., New York 3, N. Y. $2.50

Part 1, Directory of Translators, lists the services, rates, languages, subject specialties, addresses, telephone numbers and other pertinent facts about 154 translators in the United States. Part 2, Pools of Translations, describes the size, scope, languages, subject fields and sources were indexed of 42 translation pools throughout the world. Part 3, Bibliographies of Translations, cites in detail 83 references to published bibliographies of translations. Extensive cross references from and to all three parts, two appendices and a detailed geographical-subject-language index to all three parts add to the usefulness of the volume.

Library of Congress, Washington, D. C.
MONTHLY INDEX OF RUSSIAN ACCESSIONS.
June 59, 325p.
Order from GPO $12.00/year

This index is a record of the publications in languages spoken in the Soviet Union currently received by the Library of Congress and a group of cooperating libraries. It consists of three parts: Part A lists monographic literature published after 1944, with the title in the original language preceded by its English translation; Part B lists periodicals published after 1946, with their tables of contents translated into English; Part C constitutes a subject guide to both the monographs and periodical articles listed in Parts A and B.

TRANSLATIONS SERVICE ACCESSIONS, 1 Mar 59.
[44]p. TG 230-T49
Order from OTS $1.25 59-21008

Contents:
Translation notes of interest
Foreign-language scientific publications received by APL/JHU library
Foreign-language scientific publications ordered by APL/JHU library
Translated tables of contents of scientific periodicals
Civil aviation (Grazhdanskaia aviatsiia)
Progress in chemistry (Uspekhi khimii)
Journal of analytical chemistry (Zhurnal analiticheskoi khimii)
Journal of physical chemistry (Zhurnal fizicheskoi khimii)
Journal of inorganic chemistry (Zhurnal neorganicheskoi khimii)
Journal of general chemistry (Zhurnal obshchei khimii)

Journal of applied chemistry (Zhurnal prikladnoi khimii)
Automation and remote control (Avtomatika i telemekhanika)
Radio engineering (Radiotekhnika)
Automation and remote control (Avtomatika i telemekhanika)
Atomic energy (Atomnaia energiia)
Czechoslovak journal of physics
Journal of physical chemistry (Zhurnal fizicheskoi khimii)

AGRICULTURE

GIDROTEKHNIKA I MELIORATSIYA (USSR) 1959, NO. 1, P. 3-64 (Hydraulic Engineering and Soil Improvement). [1959] 12p. SOV-99-58-1-(1-13)/13.
Order from OTS $0.50, $3.00/6 mo. PB 141 092T-9
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

Akopyan, S. L and Vasil'ev, A. V.
TRACTOR ENGINEERING DURING THE 40 YEARS OF SOVIET RULE (Traktornaya Tekhnika za 40 Let Sovetskoy Vlasti) tr. by R. M. H. [1958] 20p. H-0920.
Order from OTS $0.50 59-11292

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1957, no. 12, p. 1-7.

Development of the tractor industry in Russia from 1918 to 1958 is reviewed. Early tractors were copies of American machines, but in 1928 research was organized, and in 1930 manufacturing plants were built. Systematic improvements in structural details followed, with emphasis on designing machines for agricultural use. Research on track laying vehicles resulted in modified cooling systems, aluminum alloy bushings for connecting rod bearings, aluminum alloy crankshafts, and chrome plated piston rings. One thousand gas-driven tractors were built which used wood blocks and peat briquettes as fuel. Current studies show that production of wheeled cultivator tractors should be considerably increased. Other research is being conducted on an economical 2-stroke cycle engine, a supercharging process, chassis for caterpillar tractors, and automatic hydrostatic transmissions.

Animal Husbandry

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 12 (Soviet Abstracts. Biology). 26 Feb 59, 1v. JPRS: 1301-N.
Order from OTS $1.00 59-13247

Contents:
Section R. Diseases of Farm Animals. Abstracts 54898-54976

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Radkevich, P. E.
USE OF ANTIBIOTICS; ACCORDING TO MATERIALS SUBMITTED TO THE EDITOR'S OFFICE (Primeneniye Antibiotikov; po Materialam Postupivshim v Redaktsii). [1958] 7p. Trans. V1328.
Order from LC or SLA mi$1.80, ph$1.80 59-10987

Trans. of Veterinariya (USSR) 1957, v. 34, no. 5, p. 64-66.

Various uses of antibiotics in the treatment of diseases of domestic animals are reported.

Plant Cultivation

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 5 (Soviet Abstracts. Biology). 4 Mar 59, 1v. JPRS(NY) rept. 1329.
Order from OTS $1.00 59-13277

Contents:
Section K. Forestry. Abstracts 20093-20164

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 5 (Soviet Abstracts. Biology). 4 Mar 59, 19p. JPRS(NY) rept. -1330.
Order from OTS $1.00 59-13278

Contents:
Section J. Soil Science. Abstracts 28849-28965

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 5, ABSTRACTS 20377-20640 (Soviet Abstracts, Biology). 18 Dec 58, 1v. JPRS Trans 1065-N.
Order from OTS $1.00 59-13160

Contents:
Section M. Cultivated Plants
Section N. Weeds and [Weed] Control

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Chaylakhyan, M. Kh.
THE EFFECT OF GIBBERELLINS ON THE GROWTH AND FLOWERING OF PLANTS. [1958] 5p. (3 figs. omitted) 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10529

Trans. of *Akad[emiya] Nauk SSSR. Doklady, 1957, v. 117 [no. 6] p. 1077-1080.

ASTRONOMY

SOVIET ASTRONOMY: SLECTED ITEMS 13 Jan 59, 9p. JPRS/DC-448.
Order from LC or SLA mi$1.80, ph$1.80 59-12680

Trans. of Akademiya Nauk SSSR. Vestnik, 1958, v. 28, no. 8, p. 107-109; 113-114; 116-118.

This station was set up 10 yr ago for the purpose of observing the solar corona outside of eclipse periods. The station is equipped with a coronograph, a photoheliograph, a chromosphere telescope, a large diffraction spectrograph fed by a horizontal solar installation, a radiointerferometer operating on a 1.7 meter wave, and a laboratory equipped for geometric and photometric measurements. Students at the universities of Moscow, Leningrad, Kiev, and Lvov do field work here, and advanced training is acquired by scientists from observatories in the USSR, China, Rumania, Hungary and Czechoslovakia. The work program of the station includes systematic observations of sunspots, faculae, flocculi in hydrogen and calcium light, magnetic fields of the sunspots, filaments, protuberances, and the distribution in intensity of coronal luminescence around the sun in spectral lines 5303,5694,6374,10747, and 10798 A, and radio emission of the corona in the 1.7-meter wavelength. In the Astronomy Council: The plenary session of the committee on planetary physics met at Kharkov on May 20 to 22. Astronomers from a number of observatories in the USSR, representatives of the Astronomical Council, and the director, Chang Yu-Che, of the Nakin Observatory participated. The committee heard reports dealing principally with observations of Mars in 1956 and examinations of the surface of the moon. Development in astrometry: On May 27 to 30 the Fourteenth Astrometrical Conference of the USSR was held at Kiev. The conference was attended by personnel from observatories in the Soviet Union, and scientists from China and Poland. The conference considered the results of research in the field carried out in the USSR during the past 2 years.

Zverev, M.
UTILITY OF THE SUN (Sluzhba Solntsa). [1959] 6p. F-TS-9746/V.
Order from LC or SLA mi$1.80, ph$1.80 59-14121

Trans. from Sovetskaya Aviatsiya (USSR) 1958, no. 134, 1p.

An account in laymen's terms of work in progress at the Pulkovo observatory.

Astrophysics

Gnevyshev, M. N. and Gnevysheva, R. S.
OBSERVATIONS OF THE SOLAR CORONA BETWEEN ECLIPSES IN 6374.5 A AND OF THE PROMINENCES IN 6562.8 A (Nablyudeniya Solnechnoy Korony Vne Zatmeniy v Luchakh 6374.5 A i Protuberantsev v 6562.8 A). [1959] [3]p. 1 ref. F-TS-9618/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16037

Trans. of Akademiya Nauk SSSR. Doklady, 1951, v. 76, no. 3, p. 375-376.

Gnevyshev, M. N. and Gnevysheva, R. S.
OBSERVATIONS OF THE SOLAR CORONA 5303 A RAYS BETWEEN ECLIPSES (Nablyudeniya Solnechnoy Korony Vne Zatmeniy v Luchakh 5303 A). [1959] [4]p. F-TS-9616/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16038

Trans. of Akademiya Nauk SSSR. Doklady, 1950, v. 72, no. 4, p. 659-660.

Gurzadyan, G. A.
RADIOINTERFERENCE PHENOMENA CAUSED BY THE IONOSPHERE OF THE MOON. 10 Nov 58, [10]p. 7 refs. T-109.
Order from LC or SLA mi$1.80, ph$1.80 59-10917

Trans. of [Akademiya Nauk SSSR. Doklady] 1958, v. 118, no. 5 [p. 884-887].

Lyot, [Bernard].
A NEW METHOD OF OBSERVATION OF THE SOLAR CORONA. [1958] 2p. [abstract omitted].
Order from SLA mi$1.80, ph$1.80 59-10118

Trans. of [Academie des Sciences, Paris]. C[omptes] R[endus] (France) 1950, v. 231 [no. 8] p. 461-464.

A spectrophotometer is described which was devised for the study of coronal lines which are not observable on the spectroscope because of their weakness or because of strong atmospheric scattering. This device is intended for use in measuring radial velocities, magnetic fields, or equivalent widths of lines in the sun, and for attempts to study the corona in front of the solar disk. The apparatus uses a telescope with 16cm aperture and 2.40 m focal distance.

Mustel', E. R. and Severnyy, A. B.
STUDY OF THE SPECTRA OF A LARGE CHROMOSPHERIC FLARE ON THE SUN (Issledovaniye Spectrov Bol'shoy Khromosfernoy Vspyshki na Solntse). [1959] [7]p. 10 refs. F-TS-9622/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16063

Trans. of Akademiya Nauk SSSR. Doklady, 1951, v. 80, no. 6, p. 867-870.

The chromospheric flare of 5 August 1949, up to now (intensity + 3), is studied.

Nikol'skiy, G. M.
POSSIBILITY OF ABSORPTION OF SOLAR L_α RADIATION BY THE INTERPLANETARY MEDIUM. [1958] 3p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10198

Trans. of *Astronomicheskiy Zhurnal (USSR) 1958, v. 35, no. 4, p. 657-659.

For $n_e \sim 10^2$ to 10^3 cm^{-3} and $T \sim 10^4$ degrees the concentration of neutral hydrogen in interplanetary space ($r \geq 1$ AU) is $n_H \sim 1$ to 10 cm^{-3}. The optical thickness of the interplanetary gas in the L_α line between the earth and the sun is great. A reversal of width 0.1 Å approximately should develop in the center of L_α.

Nikonov, V. B. and Severnyy, A. B.
EXPERIMENT IN ELECTROPHOTOMETRY OF THE SOLAR SPECTRUM (Opyt Elektrofotometrii Spektra Solntsa). [1959] [6]p. 4 refs. F-TS-9619/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16064

Trans. of Akademiya Nauk SSSR. Doklady, 1951, v. 77, no. 2, p. 217-220.

Ol', A. I.
CONTRIBUTION TO THE QUESTION OF THE 22-YEAR CYCLE OF SOLAR ACTIVITY (K Voprosu o 22-Letnem Tsikle Solnechoy Aktivnosti). [1959] [5]p. 4 refs. F-TS-9614/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16039

Trans. of Akademiya Nauk SSSR. Doklady, 1948, v. 63, no. 6, p. 629-630.

Sharonov, V. V.
THE ROLE OF TRUE ABSORPTION IN THE ATMOSPHERE OF MARS, tr. by Donna S. Kirby. 6 Feb 59, [26]p. 38 refs. T-111.
Order from LC or SLA mi$2.70, ph$4.80 59-10981

Trans. of *Astronomicheskiy Zhurnal (USSR) 1957, v. 34, no. 4, p. 557-567.

BEHAVIORAL SCIENCES

Personnel and Training

PROFESSIONAL'NO-TEKHNICHESKOYE OBRAZOVANIYE (USSR) 1959, NO. 1, P. 1-32 (Vocational and Technical Education). [1959] [18]p. SOV-27-59-1-(1-31)/31.
Order from OTS $0.50, $6.00/year PB 141 022T-9

Consists of abstracts in English.

Astashenkov, P. and Zhukov, B.
COMBAT HELPMATES OF THE FLIERS. [1958] [71]p. (5 figs. omitted). F-TS-9061/III.
Order from LC or SLA mi$4.50, ph$12.30 59-14099

Trans. of mono., Boyevye Pomoshchniki Letchikov, Moscow, 1956, p. 1-46.

The duties of aircraft maintenance technicians in the USSR are depicted in terms suitable for school children.

BIOLOGICAL SCIENCES

Semko, R. S.
THE INFLUENCE OF PREDATION ON NUMBERS OF YOUNG SALMON (Vliyaniye Khishchnikov na Chislennost' Molodi Lososevykh). [1959] [3]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15171

Trans. of [Akademiya Nauk SSSR]. Z[oologicheskiy] In[stitut]. Trudy Problemnykh i Tematicheskikh Soveshchaniy, 1956, v. 6, p. 148-149.

Anatomy and Physiology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 5, ABSTRACTS 21702-27917 (Soviet Abstracts. Biology). 28 Jan 59, 44p. JPRS: 1190-N.
Order from OTS $1.00 59-13099

Contents:
Section S. [Human and Animal Morphology] Blood and Hematopoietic Organs, etc.
Section U. [General Problems of Pathology] Tumors, etc.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Benoit, P. H.
THE RHYTHMIC RESPONSE OF STRIATED MUSCLE TO GALVANIC STIMULATION. [1958] 3p. 10 refs.
Order from SLA mi$1.80, ph$1.80 59-10635

Trans. of Annales de Physiologie [et de Physicochimie Biologique] 1937 [v. 13] p. 971-973.

Faytel'berg, R. O.
ABSORPTION IN THE STOMACH. Jan. 59 [16]p. 56 refs. T 299 R.
Order from LC or SLA mi$2.40, ph$3.30 59-10991

Trans. of Uspekhi Sovremennoy Biologii (USSR) 1950, v. 30, no. 3(6), p. 372-381.

This review includes material on absorption of water, salts, carbohydrates, proteins, fats, alcohol, acids, dyes, and pharmaceutical substances. The role of the nervous system and of the endocrine glands as regulators is discussed. It is concluded that the absorptive action of the stomach is the result of direct activity on the part of the epithelial cells of the gastric mucosa.

Kupalov, P. S.
CONSCIOUSNESS AND HIGHER NERVOUS ACTIVITY. 21 Apr 59, 6p. (1 fig. omitted) JPRS: L-742-N.
Order from OTS $0.50 59-13436

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 12, p. 3-6.

Kupalov, P. S.
THE STATUS OF AND PROSPECTS FOR THE PROBLEM "THE PHYSIOLOGY AND PATHOLOGY OF HIGHER NERVOUS ACTIVITY". 21 Apr 59, 6p. 3 refs. JPRS:-L-746-N.
Order from OTS $0.50 59-13440

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 12, p. 55-58.

Biochemistry

POLYUREA DERIVATIVES SUITABLE AS PLASMA EXTENDERS, DRUG VEHICLES AND DETOXIFIERS. [20 Mar 59] 7p.
Order from RIS $12.75 Rept. 25732

Trans. of German patent application F 8063 (39c, 6) by Farbenfabriken Bayer A. G., Leverkusen, filed 3 Jan 52, pub. 16 June 54.

Water-soluble polyurea derivatives suitable as plasma extenders were obtained by reducing or eliminating the basicity of the amino or imino groups. Sulfalklated derivatives of the basic polyureas were particularly suitable. The anion linked to the basic nitrogen in these intramolecular salts is part of the same molecule. Reaction products of secondary amino groups of basic polyureas with dicarboxylic acid anhydrides were well tolerated. The reaction of the secondary amino groups of basic polyureas with ethylene oxide produced non-toxic polyurea derivatives. When the secondary amino group was converted into a urea group, the basicity was removed, and the toxicity reduced. Acylating agents used were isocyanic acid in statu nascendi, low alkylene isocyanates, and others. The products resemble the natural proteins in the serum. The process for producing 3 polyureas and 4 of their derivatives is given, with a comparative tabulation of their merits. It was concluded that the basicity of the polyurea derivatives is reduced or eliminated by acylation, hydroxyalkylation, or sulfalkylation.

Barashkov, G. K.
THE CARBOHYDRATES OF SOME SPECIES OF DIATOMS. [1958] [10]p. (2 figs. omitted) 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10146

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1956, v. 111 [no. 1] p. 148-150.

Experiments were conducted to separate and identify the carbohydrates in marine planktonic diatoms collected from the Far East seas in 1954. Mixtures consisting mostly of Thalassiosira with some Biddulphia aurita were separated from the fixing alcohol, washed successively in boiling ethanol and ether, and dried in a vacuum desiccator over H_2SO_4. Known weights of dry powdered samples were extracted 10 times with water at 40°C, and the extracts were fractionated. The 3 resulting fractions were analyzed for ash, micro-Kjeldahl nitrogen, phosphorus by the Weil-Malherbe and Green method, and for total sugars by the anthrone reaction. All the fractions contained a large amount of N and P. Methods and results are given of chromatographic analyses, which were run on initial fractions. Sugars with R_f values similar to galactose, glucose, xylose, rhamnose, mannose, arabinose, ribose, and an unidentified sugar were found. Different species of algae exhibited diversified polysaccharide complexes. To establish the ratio of sugars in the fractions, chromatogram pieces of equal area bearing the colored spots were eluted in glacial acetic acid for 24 hours at room temperature, and the color of the eluates was determined photometrically. The fraction 2 and the alcoholic fraction 3 were chiefly glucose. Fraction 1 had more pentose and a greater variety in composition than fraction 2, and when obtained from water, was richer in glucose. Carbohydrates soluble in alcohol were investigated by quantitative chromatography on paper. Glucose was detected first, and a quantity sugar determination showed the presence of oligosaccharides. Sucrose, insoluble hemicellulose, and cellulose were absent.

Betina, Vladimir.
THE SIGNIFICANCE OF AMINO ACIDS FOR THE BIOSYNTHESIS OF PENICILLIN. [1958] 13p. 32 refs.
Order from SLA mi$2.40, ph$3.30 59-10583

Trans. of Chem[icke] Zvesti (Czechoslovakia) 1957, v. 11, no. 12, p. 724-730.

Important results are summarized of studies (Russian and non-Russian) on the metabolism of amino acids which apparently occupy a key position in the biosynthesis of penicillin.

Blyumenfel'd, A. A.
HEMOGLOBIN AND REVERSIBLE ADDITION OF OXYGEN: EXCERPTS. 24 Feb 59, 21p. (80 refs. omitted) JPRS: 1216-N.
Order from OTS $0.75 59-13118

Trans. of mono. Gemoglobin i Obratimoye Prisoyedineniye Kislorada, Moscow, 1957, p. 7-16 and 101-115.

Basic questions concerning the structure of porphyrins and their spectral properties are considered. The

oxidation of Hgb by the oxygen of the air, and decomposition of Hgb at lower pH values of the environment are discussed.

Danilova, L. A. and Gasanov, S. G.
INVESTIGATION OF POLYGLUCINE IN TISSUES BY THE HISTOCHEMICAL METHOD. 13 Apr 59, 8p. (5 figs. omitted) 12 refs. JPRS: L-1621-D.
Order from OTS $0.50 59-11499

Trans. of Arkhiv Patologii (USSR) 1958, v. 20, no. 3, p. 75-79.

Detection by the histochemical method of polyglucine in the organs of experimental animals showed the distribution dynamics of this compound in relation to the duration of the transfusion period. Maximum excretion of this compound in kidneys occurred during the first 24 hours. The blocking action of the reticular-endothelial system of internal organs exerted by polyglucine continued for a period of 2 to 4 days, and only in the spleen was the compound retained in small amounts for a period of up to 7 days.

D'Ans, J. and Knütter, R.
DEFINITION OF THE AREA OF EXISTENCE OF DICALCIUM PHOSPHATE AND APATITE IN THE SYSTEM H_2O-$Ca(OH)_2$-H_3PO_4 AT 25°C. [1959] 7p
Order from ATS $9.20 ATS-39L30G

Trans. of Angew[andte] Chem[ie] (West Germany) 1953, v. 65, no. 23, p. 578-581.

Evstigneyev, V. B. and Gavrilova, V. A.
THE NATURE OF THE PRIMARY PHOTOREDUCED FORM OF CHLOROPHYLL AND ITS ANALOGUES (O Prirode Pervichnoy Fotovosstanovlennoy Formy Khlorofilla i ego Analogov). tr. by Richard E. Mudge. [1958] [15]p. 13 refs. (foreign text included) UCRL Trans. 377.
Order from LC or SLA mi$2.40, ph$3.30 59-10387

Trans. of *Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 5, p. 1066-1069.

Fridlyand, I. B.
METABOLISM OF LIPIDS IN THE LIVER AND THE INFLUENCE OF GLUTATHIONE ON THIS PROCESS AFTER EXCESSIVE ADMINISTRATION OF CHOLESTEROL IN FOOD. [1959] 4p.
Order from ATS $6.40 ATS-81L30R

Trans. of Byull[eten'] Eksp[erimental'noy] Biol[ogii i] Med[itsiny] (USSR) 1958, v. 45, no. 11, p. 55-57.

Kolomiychenko, M. A.
CHANGES IN THE PHYSICO-CHEMICAL AND BIOLOGICAL PROPERTIES OF PROTEINS SUCCESSIVELY IRRADIATED WITH VARIOUS KINDS OF RADIATION. 12 May 59, 12p. 18 refs. JPRS: L-767-N.
Order from OTS $0.50 59-13469

Trans. of Ukrayins'kyy Biokhimichnyy Zhurnal (USSR) 1958, v. 30, no. 6, p. 803-812.

Irradiation of solutions of myogen A, catalase, and hemoglobin with X-rays in doses of 800-1000 r shows virtually no detectable influence on the physico-chemical and biological properties of these proteins. But their effects become manifest upon the subsequent irradiation of these proteins with ultraviolet radiation, since roentgen radiation in small doses has a latent effect on proteins which later becomes apparent upon ultraviolet irradiation. If the dose of subsequent ultraviolet radiation is relatively large, then the preceding use of roentgen rays enhances the ultraviolet inactivation of the proteins. With subsequent irradiation with average inactivating doses of ultraviolet rays, the proteins are inactivated 20 percent less than with irradiation with ultraviolet radiation alone in the same doses. Cysteine and histidine, added to the irradiated proteins in amounts of five mg per mg protein, exert a protective influence against loss by catalase and myogen A of enzymatic activity upon ultraviolet irradiation. Changes of the spectral properties of hemoglobin as the result of bactericidal irradiation (2537 A, in doses of 17-28 watt-sec/cm^2) are partially restored to normal under the influence of subsequent irradiation of the protein with small doses of erythemic radiation (3130 A, in a dose of 0.9 watt-sec/cm^2).

Korte, F., Aldag, H. U. and Schicke, H. G.
HETEROCYCLIC COMPOUNDS IN THE METABOLISM. VII. ON THE BIOSYNTHESIS OF RIBOFLAVIN. [1958] 3p. 10 refs.
Order from SLA mi$1.80, ph$1.80 59-10631

Trans. of Z[eitschrift für] Naturforsch[ung] (West Germany) 1958, v. 13b, no. 7, p. 463-464.

Kritskiy, G. A.
EFFECT OF ORTHO- AND PYROPHOSPHATE ON THE DECOMPOSITION PROCESSES OF DESOXYRIBONUCLEIC ACID IN ANIMAL TISSUES (Deystviye Orto- i Pirofosfata na protsessy Raspada Dezoksiribonukleynovoy Kisloty v Zhivotnykh Tkanyakh). [1958] 5p. 17 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3498

Trans. of Akademiya Nauk SSSR. Doklady, 1958, v. 119, no. 2, p. 336-338.

Matthias, Werner.
ON A PAPER CHROMATOGRAPHIC PROCESS FOR SERIES INVESTIGATIONS IN PLANT BREEDING (Über ein Papierchromatographisches Verfahren für Serienuntersuchungen usw). [1958] [10]p. 7 refs.
Order from SLA mi$1.80, ph$1.80 59-10540

Trans. from Der Züchter (Germany) 1954, v. 24, no. 11/12.

Osnitskaya, L. K.
THE USE OF MICROORGANISMS TO BREAK DOWN NAPHTHENIC ACIDS AND NAPHTHENIC HYDROCARBONS. [1959] [12]p.
Order from LC or SLA mi$2.40, ph$3.30 59-15057

Trans. of [Azerbaydzhanskoye Neftyanoye Khozyaystvo (USSR) 1947, v. 26, no. 5] p. 23-26.

A pure culture of microorganisms, capable of breaking down naphthenic acid, was isolated from Naftalan petroleum and sewage water from the Lyublin Sewage Station. The process of oxidizing naphthenic acids in a pure culture proceeded very rapidly: 90% of the naphthenic acids were broken down in ten days. The absence of a significant accumulation in the medium of the intermediate products of the oxidation of naphthenic acids such as alcohols, acids and aldehydes as well as saturated or decarboxylized hydrocarbons indicates that the process goes through to carbon dioxide and water. Microorganisms are capable of utilizing polymethylene hydrocarbon - dimethylcyclohexane as their sole source of carbon and energy.

Medical Specialties and Equipment

Atzler, Edgar.
TWENTY-FIVE YEARS OF INDUSTRIAL PHYSIOLOGY. [1959] 8p. 17 refs.
Order from SLA mi$1.80, ph$1.80 59-15445

Trans. of V[erein] D[eutscher] I[ngenieure]. Z[eitschrift] (Germany) 1936 [v. 80] no. 1, p. 41-44.

The work of the Kaiser Wilhelm Institute for Industrial Physiology since its founding is briefly reviewed.

Letavet, A. A.
THE DEVELOPMENT OF SCIENTIFIC INVESTIGATIONS ON PROBLEMS OF INDUSTRIAL HYGIENE IN 1959-1965. 7 May 59, 8p. JPRS: L-766-N.
Order from OTS $0.50 59-13468

Trans. of Gigiyena Truda i Professional'nyye Zabolevaniya (USSR) 1958, v. 2, no. 6, p. 3-8.

Microbiology

Imelik, Boris.
BACTERIOLOGICAL CHANGES IN PETROLEUMS. [1959] 3p. 1 ref.
Order from SLA mi$1.80, ph$1.80 59-15061

Trans. of [Academie des Sciences, Paris. Comptes Rendus] (France) 1948, v. 226, p. 922-923.

Oils analyzed 4 weeks after seeding with soil bacteria showed an increase in density and partial disappearance of the light fractions in the aromatic and ethylene hydrocarbon fraction, an increase in the bromine number (indicating a conversion of saturated hydrocarbons into unsaturated hydrocarbons), and a considerable decrease in the density and lowering of the boiling point of the paraffin and naphthenic hydrocarbon fraction. These results indicate that cracking of heavy hydrocarbons, especially the opening of the rings, by bacterial action is a possibility.

Mats, L. I.
FORTY YEARS OF SOVIET SANITARY BACTERIOLOGY. 6 May 59, 6p. JPRS: L-755-N.
Order from OTS $0.50 59-13449

Trans. of Gigiyena i Sanitariya (USSR) 1958, no. 7, p. 22-26.

Nyuksha, Yu. P.
MYCOFLORA OF BOOKS AND PAPERS [Mikoflora Knig i Bumagi] [1958] 27p. 43 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10867

Trans. of Botanicheskiy Zhurnal (USSR) 1956, v. 41, no. 6, p. 797-809.
Another translation is available from LC or SLA mi$2.70, ph$4.80 as 59-10244 [1958] 25p.

For abstract see 59-10244 below.

Nyuksha, Yu. P.
MYCOFLORA OF BOOKS AND PAPERS (Mikoflora Knig i Bumagi) tr. by D. A. Sinclair. [1958] 25p. 35 refs. Technical Trans. 783.
Order from LC or SLA mi$2.70, ph$4.80 59-10244

Trans. of Botanicheskiy Zhurnal (USSR) 1956, v. 41, no. 6, p. 797-809.
Another translation is available from LC or SLA mi$2.70, ph$4.80 as 59-10867 [1958] 27p.

This general background discussion contains an itemized listing of the 106 species of fungi identified on books in the Saltykova-Shchedrin State Public Library.

Rehacek, Zdenek.
DETERMINATION OF THE NUMBER OF SPORES OF SPORULATING ACTINOMYCES IN THE SOIL AND THEIR ISOLATION. [1958] 12p. 12 refs.
Order from SLA mi$2.40, ph$3.30 59-10850

Trans. of Ceskoslovenská Mikrobiologie, 1956, v. 1, p. 129-134.

A method is described whereby soil samples suspended in water are centrifuged for 20 min at 3000 rpm.

Rippel, August and Behr, Georg.
ON THE DE-TOXICATION OF SULPHURIC ACID IN CULTURES OF ASPERGILLUS NIGER, tr. by S. Asher. Sep 58, 9p. 6 refs.
Order from SLA mi$1.80, ph$1.80 59-10289

Trans. of Archiv für Mikrobiologie (Germany) 1936, v. 7, p. 584-589.

In cultures of Aspergillus niger using sulphate as the potassium source, the sulphur precipitable with barium partly disappeared; with a high sugar dose up to 60% disappeared. The result was similar when free sulphuric acid was added. When potassium chloride was used, no disappearance of precipitable chloride ions was noticable. With the commencement of the autolysis, at the cessation of the mycelium formation, relatively large quantities of the organically bound sulphur of the culture liquid were absorbed by the mycelium or further reacted there. It pointed out that the organic sulphur compounds of the humus substances in the earth could have originated in a similar way.

Shturm, L. D.
STUDIES ON THE ASSIMILATION OF HYDROCARBONS BY MICROORGANISMS. [1959] 14p.
Order from ATS $18.95 ATS-15L30R

Trans. of Mikrobiologiya (USSR) 1958, v. 27, no. 6, p. 740-752.

Slavinina, G. P.
APPLICATION OF FLUORESCENCE METHOD FOR THE INVESTIGATION OF SOME VARIETIES OF HYDROCARBON OXIDIZING BACTERIA. [1959] 7p. 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10284

Trans. of Mikrobiologiya (USSR) 1948, v. 17, p. 77-81.

The study of a series of soil bacteria species, in particular of nitrificators, of some ammonificators and of cumulative cultures of anaerobic cellulose destroying bacteries, showed that only the ammonificators have a primary fluorescence. Both mixed cultures as well as separate species (Bact. mycoides, Bac. subtillis, Bac. mesenthericus, etc.) give a blue color under ultra-violet rays (with a wave length of 300 to 400 μ). Bact. prodigiosum, Bact. pyocyancum and Sarcina flava present a fluorescence in a spread of ultraviolet rays, preserving thereby the basic color of natural pigment. A study of hydrocarbons microflora under the quartz lamp indicated that the bacteries oxidizing gaseous hydrocarbons (methane, ethane, propane) do not show fluorescence. The Bact. aliphaticum liquefaciens, oxidizing pentane and the higher hydrocarbons has a natural bright green fluorescence. The best growth of Bact. aliphaticum liquefaciens occurs at pH - 6.0 to 7.0, and the fluorescence, obviously related to the amount of bacteries, is characterized by a greatest fluorescence at the same reaction of the medium. The appearance of fluorescence in Bact. aliphaticum liquefaciens is tied to the pigmentation of the culture. The coloration of culture increases with the growth of the bacteries and the intensity of color increases in parallel. Investigations on Bact. aliphaticum liquefaciens in fluorescent microscope showed that the bacterial bodies themselves have a very intensive natural fluorescence, although the products of their metabolism have also some luminescence. The Bact. aliphaticum liquefaciens can be easily recognized thanks to its characteristic natural fluorescence in a bacterial culture in a mixture of gaseous and liquid hydrocarbons. The fluorescence method can be utilized for the detection of Bact. aliphaticum liquefaciens in mixed cultures.

Solntseva, L. I.
FILTRABLE FORMS OF BACTERIA IN THE AIR. 3 Feb 59. 4p. (2 figs. omitted) 1 ref. JPRS L-1453-D.
Order from OTS $0.50 59-11439

Trans. of Mikrobiologiya (USSR) 1954, v. 23, no. 3, p. 249-251.

Zasukhin, D. N. and Vasina, S. G.
DEVELOPMENT OF THE CAUSATIVE AGENT OF MALARIA IN TISSUE CULTURES, tr. by Paul V. DePorte. 21 Apr 59, 10p. (2 figs. omitted) 11 refs.
Order from LC or SLA mi$1.80, ph$1 80 59-14865

Trans. of Zoologicheskiy Zhurnal (USSR) 1956, v. 35, p. 1450-1453.

Pathology

Ado, A. D.
NEW TEACHING IN ALLERGY. 21 Apr 59, 13p. JPRS: L-743-N.
Order from OTS $0.50 59-13437

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 12, p. 7-15.

Bickel, G. and Rutishauser, E.
[SYNDROME OF THE SPRUE OF A LYMPHOGRANULOMATOSIS OF THE INTESTINE AND THE MESENTERIC LYMPH-NODES] (Syndrome de Sprue Symptomatique d'une Lymphogranulomatose de l'Intestin et des Ganglions Mésentériques). Oct 58, [17]p. (10 figs. omitted) 54 refs.
Order from SLA mi$2.40, ph$3.30 59-10977

Partial trans. of Helvetica Medica Acta (Switzerland) 1942, v. 9, p. 697-719.

Case history.

Bogdanov, I. L.
RESULTS OF THE SCIENTIFIC SESSION OF THE INSTITUTE OF INFECTIOUS DISEASES AMS USSR ON THE PROBLEM OF POLIOMYELITIS (KIEV, 1958). 30 Apr 59, 7p. JPRS: 694-D.
Order from OTS $0.50 59-11536

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik. 1958 [v. 13] no. 8, p. 54-57.

Bonfils, S., Liefooghe, G. and others.
THE STRESS ULCER IN THE WHITE RAT; CHANGES IN FREQUENCY OF OCCURENCE OF LESIONS BY VARIOUS SURGICAL AND PHARMACODYNAMIC PROCEDURES. [1958] 3p. 1 ref.
Order from SLA mi$1.80, ph$1.80 59-10355

Trans. of Soc[iété de] Biol[ogie et de ses Filiales]. Comptes Rendus [des Séances] (France) 1957, v. 151 [no. 6] p. 1149-1150.

Stress was induced in 93 white rats by immobilization for 7 hr by means of a flexible wire netting corset. 68% of the animals developed gastric ulcers. Frequency of ulceration was shown to be reduced substantially by (a) isolation in a quiet place during restraint, (b) nephrectomy 12 to 26 days prior to stress (c) administration of cortizone 10 mg daily/150 g body wt for the period of 3 or 7 days preceeding stress (d) administration of nembutal. Adrenalectomy and administration of Δ-cortisone respectively had no apparent effect.

Dejerine, J. and Sottas, J.
INTERSTITIAL NEURITIS, HYPERTROPHIC AND PROGRESSIVE, OF CHILDREN (Sur la Névrite Interstitielle, Hypertrophique et Progressive de l'Enfance). Nov 58? [22]p. [14 illus. omitted].
Order from SLA mi$2.70, ph$4.80 59-10750

Partial trans. of Société de Biologie [et de ses Filiales]. Comptes Rendus [des Séances] (France) 1893, v. 45 [no. 16] p. 63-96.

Case histories and autopsies of 2 patients, involving a probable new disease, are described. There is a particular lesion of the peripheral nerves consisting of an interstitial ascending neuritis which continues into the posterior columns. Clinical observations of the disease reveal that it begins in early age with muscular atrophy of the extremities, alterations in sensations and lightning pains, kyphoscoliosis, hypertrophy and thickness of the nerve trunks. Later there develop symptoms of incoordination of the motor effect with Romberg's sign, miosis with slow or abolished light reflexes, the sign of Argyll Robertson and a dynamic nystagmus. This disease is in general familial and should be considered as a hereditary illness due to an anomaly of development of the peripheral nervous system. The disease has been termed hypertrophic and progressive interstitial neuritis of children. During clinical examination of doubtful cases, nerve trunks and the extremities should be examined since they are always increased in volume.

Dreyfus, G., Moricard, R., and Roussel Le Guen, J.
FEMINIZING TUMOR OF THE TESTICLE WITH GYNECOMASTIA. SURGICAL CURE; CLINICAL, BIOLOGIC AND HISTOLOGIC STUDY (Tumeur Féminisante du Testicule avec Gynécomastie. Guérison Chirurgicale; Étude Clinique, Biologique et Histologique). [1959] 5p. (4 figs. omitted).
Order from SLA mi$1.80, ph$1.80 59-15481

Trans. of Annales d'Endocrinologie (France) 1948, v. 9 [no. 2] p. 136-148.

Gutkin, A. Ya.
THE ROLE OF G. V. KHLOPIN IN THE ORGANIZATION OF THE SCIENTIFIC RESEARCH SANITARY HYGIENIC INSTITUTE IN LENINGRAD.
6 May 59, 5p. JPRS: L-756-N.
Order from OTS $0.50 59-13450

Trans. of Gigiyena i Sanitariya (USSR) 1958, no. 7, p. 85-87.

Herken, H.
NEW STUDIES ON THE HORMONAL CAUSES OF EDEMA (Neue Untersuchungen über die hormonalen Ursachen des Oedems). [1959] 14p. (4 figs. omitted).
Order from SLA mi$2.40, ph$3.30 59-10832

Trans. of Wien[er] Klin[ische] W[ochen]schr[ift] (Austria) 1958, v. 70, p. 518-521.

The action of aldosterone and vasopressin was studied in connection with edematous diseases. Results seem to indicate that the action of these hormones, in edema, is antagonistic rather than synergistic. Antidiuretic vasopressin was shown not to be responsible for primary water retention in edema. Increased aldosterone production resulted in the increased sodium retention. The increase in aldosterone concentration was found to occur as the result of biochemical disturbance of the central nervous system. The ensuing disturbance of biosynthesis leads to a predominance of the aldosterone function, so that vasopressin which results no longer has a diuretic effect because the quantities secreted are too small and too infrequent to counteract the increased aldosterone formation.

Ibragimova, V. S.
CHINESE NATIONAL MEDICINE ACCORDING TO DATA OF THE 10TH JOINT CONGRESS OF THE SOCIETY OF CHINESE MEDICAL WORKERS.
13 May 59, 7p. JPRS: L-781-N.
Order from OTS $0.50 59-13516

Trans. of Sovetskaya Meditsina (USSR) 1957, v. 21, no. 3, p. 69-73.

Il'ina, N. A.
THE USE OF ION-EXCHANGE RESINS IN MYOTONIA (Primeneniye Ionoyobmennykh Smol pri Miotonii). Preliminary rept. Dec 58 [14]p. (2 figs. omitted) 16 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10342

Trans. of Klinicheskaya Meditsina (USSR) 1957, v. 35, no. 9, p. 108-114.

The Soviet ion-exchangers SDB-3 and SBS were tried out in the ammoniacal and hydrogen forms for the elimination of potassium ions in three patients with Thomsen's myotonia. These preparations were completely non-toxic and the use of the ammoniacal form produced no side-effects. Some improvement in the condition and a decrease in the myotonic symptoms were noted in all three patients. The cation-exchangers can be used for the treatment of ambulatory patients under the conditions of regular medical observation and control of the state of the blood and urine.

Köhler, A.
[ACTINOMYCOSIS OF THE LEFT TIBIA] (Actinomykosis an der Linken Tibia) tr. by R. A. Pyka. Dec 58, [2]p.
Order from SLA mi$1.80, ph$1.80 59-10364

Summary trans. of Charité-Annalen (Germany) 1887, v. 12, p. 599.

Case #4: Farmer, 17 years old. Abscesses on the cheek and sternum which broke open spontaneously and healed after several weeks. Acute infectious arthritis and ankylosis of the right knee 1/2 year later. Rupture of an abscess in the back of the knee. Gradual development of several large abscesses all over the body and in the lungs, also ligneous induration. O.Israel proved actinomyces in pus and sputum (not specified how). No autopsy. (Pt. died) Case #5: Farmer, 14 years old, actinomycosis of left tibia. Spontaneous rupture of an abscess in the left lower leg. Apparent cure by radical extirpation of the bone abscess in the upper third of the tibia. (The author states only that actinomyces were found in the pus, he does not state how). (Summary trans. reprinted here in its entirety.)

Lavrov, B. A.
A SHORT REVIEW OF THE 1956-1957 SCIENTIFIC-RESEARCH ACTIVITY OF MEMBERS OF THE DEPARTMENT OF HYGIENE, MICROBIOLOGY AND EPIDEMIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES WHO ARE NOT WORKING IN INSTITUTES OF THE ACADEMY. 17 Feb 59, 11p. JPRS L-1495-D.
Order from OTS $0.50 59-11448

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 5, p. 76-81.

Nicrosini, F. and Piccinelli, O.
FIRST OBSERVATIONS ON THE USE OF THE COMBINATION PREDNISONE-CHLOROTHIAZIDE IN TREATING WATER RETENTION (Prime Osservazioni sull' Uso della Associazione Prednisone-clorotiazide nella Terapia Stati di Ritenzione Idrica). [1958] 8p. 41 refs.
Order from SLA mi$1.80, ph$1.80 59-10829

Trans. of Il Farmaco; Ed[izione] Sc[ientifica] (Italy) 1958, v. 13 [no. 10] p. 726-731.

The combined administration of prednisone and chlorothiazide as therapy for edema was clinically tested on 12 patients, kept on a liberal diet, 5 of whom had ascitogenic liver cirrhosis (2 with hepatomegaly) and 7 with decompensated cardiopathy (3 with mitral defects). In all patients treated, the combination therapy was given only after a prolonged administration of either drug alone had produced an unsatisfactory diuretic response. 1 gm of chlorothiazide was given daily for the first 5 to 10 days, according to the case and then reduced to 0.5 gm; 30 mg of prednisone were given for the first 3 to 4 days, gradually being reduced to a dose of 10 to 15 mg. All patients treated responded with an activation of diuresis. Cirrhotic patients responded with a regression of peripheral edemata but also an absorption of ascites. Intolerance was not observed although 1 gm of KCl given during periods of maximal diuresis, may have been an offsetting factor.

Sirotinin, N. N.
THE ROLE OF ALLERGY IN THE INFECTION PROCESS. 21 Apr 59, 10p. 2 refs. JPRS: L-744-N.
Order from OTS $0.50 59-13438

Trans. of Akademiya Meditsinskikh Nauk SSSR, Vestnik, 1958, v. 13, no. 12, p. 15-21.

A synopsis is presented, with reference to von Pirquet, Schick, Wolf-Eisner et al. Experiments in the author's laboratory are mentioned which present abundant proof that the Schwartzman phenomenon plays a role in the pathogenesis of acute arthritic rheumatism.

Smorodintsev, A. A., Davidenkova, Ye. F. and others.
RESULTS OF A STUDY OF THE REACTOGENIC AND IMMUNOGENIC PROPERTIES OF A LIVE POLIOMYELITIS VACCINE. [1959] [29]p.
Order from LC or SLA mi$2.70, ph$4.80 59-12304

Trans. of mono. pub. by [Akademiya Meditsinskikh Nauk SSSR].

In observations on 1,204 small children, 95% of them triply negative as regards antibodies against poliomyelitis viruses, no neurological or general clinical reactions were noted to enteral administration of a live vaccine prepared from additionally attenuated A. Sabin strains. Analogous results were noted in a group of unvaccinated children with the same number and composition, who had been in close and prolonged contact with the vaccinated children, in the course of which it was found that the children of the former group were rather regularly infected with the vaccine strains. Virological study of the young vaccinated children revealed a completely regular multiplication of the vaccine strains in the intestinal tract, reaching its highest level 8 to 21 days after the immunization (10^4-10^6 tissue 50% doses of the virus to 1 g. of feces), with a subsequent rapid clearing of the intestinal tract within 45 to 60 days after the beginning of the vaccination. A repeated administration of live vaccine of the homologous 3 to 6 months after enteral immunization either did not give rise to any vaccine infection at all or brought about a very scanty and short-lived multiplication of the virus that had been given. This shows that the subjects vaccinated with the live vaccine had developed a local immunity of the intestinal tract, capable of restricting the ciruclation of the virus among the vaccinated population. Enteral immunization with the live vaccine stimulates the development of humoral immunity, the intensity, duration, and frequency of which are superior to the values obtained by the use of triple injections of Salk's killed vaccine. A course of 5 to 8 prolonged passages of the vaccine strains through the intestinal tracts of susceptible children is accompanied by a periodic heightening of their neurotropic activity for monkeys, the quantitative levels of which, with intracerebral and intraspinal infection, are no greater than those obtained with a tissue-culture virus dilution of 1:10.

Tappeiner, J., Tirschek, H., and Wodniansky, P.
THE DETERMINATION OF HISTAMINOPEXY FOR ASSESSMENT OF THE ALLERGIC PREDISPOSITION (Die Bestimmung der Histaminopexie zur Feststellung des Allergischen Terrains). Feb 59 [5]p.
Order from SLA mi$1.80, ph$1.80 59-10842

Partial trans. of Wiener Klinische Wochenschrift (Austria) 1958, v. 70 [no. 24] p. 437-440.

The contractions of a guinea pig gut when subjected to histamine, and to blood serum preparations from individual patients were studied to determine the role of histaminopexy in allergic reactions. Serum from 3-5 cc of blood was obtained by coagulation and centrifugation and dialysed with physiologic saline through a collodion sac at room temperature for 24 hr. The steps were repeated 3 times to rid the serum of unidentified substances which activate the guinea pig gut for histamine. The histamine solution was mixed with a 5% solution of serum. The gut was tested with histamine alone, and histamine with serum in equal concentrations. The contraction spikes were lower after the addition of the histamine-serum preparation if the patient was non-allergic. Heights of the spikes were 20-40% lower than those obtained from histamine alone. In allergic patients, the spikes were equally high in the contractions of histamine alone. There was an increase in the histamine blood levels during allergic reactions.

Wegener, Hermann.
MYXEDEMA AND PSYCHOSIS (Myxödem und Psychose). Jan 59 [18]p. 26 refs.
Order from SLA mi$2.40, ph$3.30 59-10703

Trans. of Zeitschrift fllr die Gesamte Neurologie und Psychiatrie (Germany) 1932/33, v. 143, p. 542-555.

Case history.

Pharmacology and Toxicology

Bilay, V. I.
VOLATILE ANTIBIOTICS IN TRICHODERMA PERS. FUNGI. [1958] 14p. 15 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10866

Trans. of Mikrobiologiya (USSR) 1956, v. 25, no. 4, p. 458-4[66].

The existence of volatile substances having an extensive range of antibacterial activity with respect to gram-positive and gram-negative microorganisms and certain species of phytopathogenic and soil fungi is determined for fungi of the species Trichoderma.

Boyko, I. D. and Bylinkina, Ye. S.
SPRAY DRYING OF ANTIBIOTICS. 24 Mar 59, 8p. (2 figs. omitted) 6 refs. JPRS: L-1569-D.
Order from OTS $0.50 59-11470

Trans. of Meditsinskaya Promyshlennost' SSSR, 1958, v. 12, no. 7, p. 41-46.

Ginsburg, N. N.
THE PROBLEM OF LIVE VACCINE IN POLIOMYELITIS. 21 Apr 59, 11p. JPRS: L-745-N.
Order from OTS $0.50 59-13439

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 12, p. 39-46.

A synopsis is presented of investigations on live poliomyelitis vaccines in the United States, Europe, North Africa and the USSR. There are no biliographical citations, and there is no evidence of original work.

Frommel, E.
PHARMACODYNAMICS OF ANTIPARKINSONIAN MEDICATION (La Pharmacodynamie de la Médication Antiparkinsonienne). [1958] 10p. (3 figs. omitted) 13 refs.
Order from SLA mi$1.80, ph$1.80 59-10625

Trans. of La Presse Médicale (France) 1958, v. 66 [no. 78] p. 1745-1746.

Tremorine was used to study the pharmacodynamics of antiparkinsonian medication. The anticholinergic, antihistaminic and papaverinic capacity of the antiparkinsonian medication were determined by effects on contractions produced by acetylcholine, histamine, and $BaCl_2$. The tremor and muscular rigidity of Tremorinized mice were examined to show the anti-Tremorine effects of increasing doses of antiparkinsonian medication. The results were recorded by an electropneumograph. The findings in the anticholinergic, antihistaminic, and papaverinic research were based on the effects of each drug on the isolated ileum of a guinea pig. The antihistaminic and papaverinic factor of antiparkinsonian medication was not significant in the pharmacodynamic effect of these drugs. The anticholinergic action of the drugs shows no parallelism between its potency and its effect. The secondary effects, which were a stimulant in mice but are usually depressant in man, represent the second pharmacodynamic axis of this medication and act either on the reticular substance or the extrapyramidal bundle. Antiparkinsonian medication acquires its pharmacodynamic entity because the terrain on which it acts constitutes an entity from the anatomical and physiopathological point of view.

Janot, Maurice-Marie, Pénau, Henry and others.
CHEMICAL CONSTITUTION OF THE ANTIBIOTIC "FRAMYCETIN". I. STUDY OF THE ACID PRODUCTS OF HYDROLYSIS. [1958] 24p. 1 ref. Trans. no. 302.
Order from SLA mi$2.70, ph$4.80 59-10606

Trans. of Soc[iété] Chim[ique] de France. Bull[etin] 1954, July/Dec, 1. 1458-1463.

Framycetin, the issue of a mutant of Streptomyces T. 59, is a new antibiotic whose bacterial spectrum presents points in common with those of streptomycin and of "neomycin". The study of the hydrolysis products led to the isolation of an amine fraction, identical with neamine, of a diamino-hexose and of a pentose. This constitution, still fragmentary, shows that framycetin differs clearly from streptomycin and from neomycins.

Kerry, R. A. and Rost, E.
THE EFFECTS OF SODIUM PERCHLORATE III., tr. by J. J. Licari. 19 Feb 59, 20p. 23 refs. Pa 3218.
Order from SLA mi$2.40, ph$3.30 59-10901

Trans. of [Naunyn-Schmiedeberg's] Archiv für Experimentelle Pathologie und Pharmakologie (Germany) 1897, v. 39, p. 144-172.

Levi, P[rimo] G[iorgio] and Sinisi, L[uigi].
CLINICAL, ELECTROENCEPHALOGRAPHIC AND ELECTROCARDIOGRAPHIC STUDY OF A NEW PSYCHOMIMETIC DRUG: PHENYL-PIPERIDYL-(2)-ACETIC ACID METHYLESTER (RITALIN) (Studio Clinico, Elettroencefalografico ed Elettrocardiografico di un Nuovo Farmaco Psicomimetico: l'Estere Metilico dell'Acido Fenil-piperidil-(2)-acetico (Ritalin)). [1959] [20]p. (7 figs. omitted) 19 refs.
Order from SLA mi$2.40, ph$3.30 59-15053

Trans. of Riv[ista] Sper[imentale] di Freniatria [e Medicina Legal della Alienazioni Mentali] (Italy) 1958, v. 82 [no. 1] p. 205-[220].

The effects of Ritalin on EEG and EKG were studied to evaluate its use in the treatment of psychotic and psychoneurotic patients. A total of 30 psychotic patients were given 20-30 mg p.o., 13 patients were given 20 mg i.v., and the EEG and EKG were recorded before and during the injections. There were no consistent or obvious changes in EEG. EKG showed a slight change in rate without any signs of coronary deficiency. Side effects of the drug produced a moderate acceleration of the heart, pulse, and respiratory rates, and a moderate, transitory increase in blood pressure. The symptoms were slightly annoying but not detrimental to the patient. The i.v. injections amplified the psychopathological symptoms, particularly in the hebephrenic states. Sometimes patients revealed psychopathological symptoms which they did not manifest before the administration of the drug. The p.o. administration increased the tendency of patients to become extroverted, resulting in a euphoria, and a lessening of depressive symptoms. Ritalin is recommended for psychodiagnostic purposes, for therapeutic use in depressive psychoses, and psychoneuroses with asthenia.

Richterich, R.
EXPERIMENTAL-CLINICAL STUDIES ON HYDROCHLOROTHIAZIDE (ESIDRIX) A NEW SULFONAMIDE WITH DIURETIC ACTION (Experimentell-Klinische Untersuchungen uber Hydrochlorothiazide (Esidrix) ein Neues Diuretisch Wirksames Sulfonamid). [1959] [42]p.
Order from SLA mi$3.30, ph$7.80 59-15689

Trans. of Klin[ische] W[ochenschrift] (Germany) 1959, v. 37, [no. 7] p. 355-365.

Shubladze, A. K., Bychkova, Ye. N., and Anan'yev, V. A.
EMBRYONIC VACCINE FOR THE PROPHYLAXIS OF THE SPRING-SUMMER TICK-BORNE ENCEPHALITIS. 4 Feb 59, 12p. 4 refs. JPRS: L-509-N.
Order from OTS $0.50 59-13091

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1958, no. 10, p. 102-109.

Tuchmann-Duplessis, H. and Mercier-Parot, L.
ACTION OF DESERPIDINE ON THE RAT'S GENITAL SYSTEM (Action de la Déserpidine sur l'Appareil Genital du Rat). [1958] 5p. (1 fig. omitted).
Order from SLA mi$1.80, ph$1.80 59-10357

Trans. of Soc[iété de] Biol[ogie et de ses Filiales]. C[omptes] R[endus des Séances] (France) 1958, v. 152 [no. 2] p. 238-240.

Subcutaneous infections of deserpidine, an alkaloid extracted from Rauwolfia canescens, changed the structure of the genital system of male rats without changing the general condition. In the testicles, a dissociation was found between the germinal and endocrine functions; the latter was rapidly inhibited, whereas spermatogenesis remained normal or was slightly slowed, if large doses (50γ/100 gm animal) were given for one month. The endocrine deficiency of the testicle was expressed by a decrease in the height of the secreting epithelium of the seminal vesicles and the prostate. After 30 days of treatment, this regression was almost as marked as in a castrate. Simultaneously with the regression of the genital adnexa, a considerable development of the breast glands was found. Their glandular acini and the galactophorous canaliculi were dilated and their lumina filled with abundant colostrum. The analogy between these changes and those observed under the effect of reserpine indicated a hypophyso-hypothalamic origin.

Yermol'yeva, Z. V.
ANTIBIOTICS-EXPERIMENTAL CLINICAL STUDY. 12 Feb 59, 7p. JPRS: L-626-N.
Order from OTS $0.50 59-13116

Trans. of table of contents of mono. Antibiotiki-Eksperimental'no Klinicheskoye Izucheniye, Moscow, 1958, p. 411-414.

Radiobiology

RADIOBIOLOGY IN THE USSR: UTILIZATION OF RADIATION AND RADIOISOTOPES IN BIOLOGY AND MEDICINE IN THE USSR. 18 Nov 58, 16p. 26 refs. JPRS (NY) Rept. no. 899.
Order from OTS $0.50 59-11100

Consists of abstracts of articles from selected Soviet periodicals.

The abstracts are grouped under the following subject headings: Hematological research, chemosynthesis, Hypothermy, Radiation.

SOVIET RESEARCH ON RADIATION SICKNESS. 23 Mar 59, 60p. (16 figs. omitted) 76 refs. JPRS: 1390-N.
Order from OTS $1.75 59-13343

Trans. of Meditsinskaya Radiologiya (USSR) 1958, [v. 3] no. 2, p. 3-10, 49-52, 53-60, 72-85.

Contents:
The problem of radiation reactions and radiation sickness, by G. A. Zedgenidze, I. S. Arnosov and L. F. Sinenko
The sensitivity of newborn rats to various doses of penetrating radiation, by V. V. Kholin
Changes in the blood in chronic radiation sickness, by M. S. Lapteva-Popova
The effect of intravenous administration of novocaine on the course of experimental radiation sickness, by S. P. Sizenko and V. V. Markovich
Certain data on the use of Urotropine in the treatment of radiation sickness, by M. P. Domshlak and L. B. Koznova
The problem of the "protective factor" of the hematopoietic tissues. (A review of the foreign literature) by Yu. M. Zaretskaya.

Barth, G., Börner, W., and others.
COMPARISON OF THE LETHAL DOSE OF 190-KV X-RAYS AND 15 MEV ELECTRONS FOR WHOLE-BODY IRRADIATION OF RATS. [1958] 7p. (1 fig. omitted) 9 refs.
Order from SLA mi$1.80, ph$1.80 AEC-tr-3473

Trans. of Strahlentherapie (West Germany) 1953, v. 92 [no. 4] p. 649-653.

Young rats, placed in paraffin, were irradiated in groups of 10 to 30 with 15-Mev fast electrons at the average rate of 200 r/min and a duty cycle of 1/200, and with 190-kv X-rays through a 2.5-mm Al filter at the rate of 1500 r/min. X-radiation produced small survival periods, intense radiation damage, inhibition of growth, lipomatosis in the peritoneal cavity, strong distention of the stomach, liver degeneration and lymphocyte degeneration in the red pulp of the spleen. Electron irradiation resulted in longer survival periods, little radiation damage, inhibition of growth, pronounced lipomatosis in the peritoneal cavity, hyperemia of the adrenals, mucous filled goblet cells in the intestine, slight liver degeneration and lymphocyte degeneration in the red pulp of the spleen.

Breslavets, L. P.
RADIOSENSITIVITY OF CELL ORGANELLES. 2 Apr 59, 12p. (16 figs. omitted) 14 refs. JPRS: L-694-N.
Order from OTS $0.50 59-13308

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958, no. 3, p. 282-290.

Drogichina, E. A., Byalko, N. K. and others.
THE CLINICAL PICTURE OF THE INITIAL STAGES OF THE CHRONIC ACTION OF IONIZING RADIATIONS ON THE ORGANISM. 10 Apr 59, 10p. 18 refs. JPRS: L-696-N.
Order from OTS $0.50 59-13315

Trans. of Gigiyena Truda i Professional'nyye Zabolevaniya (USSR) 1958, v. 2, no. 2, p. 3-8.

Farber, V. B.
THE STIMULATION OF HEMATOPOIESIS IN ACUTE RADIATION DISEASE. 8 Dec 58, 10p. 14 refs. JPRS: Trans: L-765-D.
Order from OTS $0.50 59-11196

Trans. of Meditsinskaya Radiologiya (USSR) 1957, v. 2, no. 3, p. 40-47.

Therapy, directed towards the stimulation of hematopoiesis in acute radiation disease should be carried out within a general plan of combined therapy, taking into account the organism's reactivity, the degree of severity and the stage of disease, as well as the functional capacity of the vascular system, particularly of the bone marrow. In acute radiation disease of severe degree, therapy for purposes of stimulating hematopoiesis should be initiated from the time that hematopoietic function is increased, i.e. stimulation evoked a positive reaction. Stimulative therapy is not indicated under conditions of increasing insufficiency of hematopoiesis, usually observed in severe radiation disease. In acute radiation of average degree, it is more beneficial to start stimulative therapy at the onset of the latent period of the disease, when the initial depression of leukopoiesis, particularly granulopoiesis, appears. This therapy must be carried out under control -- according to the indices of examination of the peripheral blood -- and gradually increasing the stimulating action. When the disease reaches its climax, this therapy should be carried out with utmost caution, increasing it again at the beginning of recovery. In acute radiation of mild degree, it is expedient to apply stimulative therapy upon discovery of leukopenic or thrombopenic reaction. In conjunction with this therapy, proper diet and a suitable physical regime hasten recovery. In the search for the most effective agents and methods of treatment of functional disturbances of the vascular system in acute radiation disease, attention should be devoted to the study of hematopoietic stimulation and destruction of blood and their interrelationship in acute radiation disease.

Fedorova, L. V.
THE CHANGE IN THE LATENT PERIOD OF THE FLEXOR REFLEX OF THE SHIN IN RABBITS FOLLOWING GENERAL IRRADIATION WITH A 10 R DOSE OF X-RAYS. 23 Mar 59, 8p. 4 refs. JPRS: L-714-N.
Order from OTS $0.50 59-13342

Trans. of Meditsinskaya Radiologiya (USSR) 1958, [v. 3] no. 2, p. 32-36.

Measurements of the time of the flexor reflex of the shin in rabbits after x-irradiation of 10r, was carried out according to the modified V. V. Zakusov method which made it possible to study dynamically the manifestations of the radiation reaction with such small doses. A stop watch was connected into the stimulus-inducing circuit automatically when the stimulus was applied. Through the reflex movement of the shin, the switch connection was disconnected and the stop watch was stopped. Thus the hand of the

stop-watch indicated the time from the moment of application of the stimulus until the response motor reaction, e. g. the latent period. It was established that the reflex time is obtained best, over the course of 6 to 8 hour experiments, if each successive stimulus is applied at no less than 2 min intervals. Results showed that x-irradiation of 10r produces considerable changes in the time of the flexor reflex which occurs in wave-form fashion over a 2 week period, with the greatest changes being found in the first few days. Disturbances in the strength relationships of individual experimental animals were noted.

Gamaleya, A. N., Gyurdzhiyan, A. A. and others.
TREATMENT OF ACUTE RADIATION SICKNESS IN DOGS BY DRIP BLOOD TRANSFUSIONS.
26 Nov 58, 8p. JPRS (NY) L-439.
Order from OTS $0.50 PB 141 338T

Trans. of Meditsinskaya Radiologiya (USSR) 1957 [v. 2] no. 6, p. 56-60.

Daily blood transfusions of 200-300 cc were administered to 12 dogs during the first 7 days after 600-650 r. of X radiation. The 7 animals receiving transfusions and 6 controls died within 20 days. Among the dogs that died from radiation sickness, no notable differences in clinical course were observed between experimental and control animals. Among survivors, the course in the experimental group was milder. Leukocytes remained above 1000/cu mm in most cases, weight losses were less, usual behavior was rapidly recovered, changes of hair and mucosae were less. Neither surviving experimental nor control dogs showed evidence of radiation involvement at autopsy. Blood transfusion is therefore of greatest effectiveness in cases with mild clinical course.

Glushko, A. P., Markov, L. K. and Pilyugin, L. P.
MILITARY RADIOACTIVE SUBSTANCES (Boyevoye Radioaktivnye Veshchestva) tr. by E. R. S. [1959] [5]p. H-2733.
Order from OTS $0.50 59-11905

Trans. of mono. Atomnoye Oruzhiye i Protivatomnaya Zashchita, Moscow, 1958, p. 95-100.

Ilyina, L. I., Blohina, V. O., and Uspenskaya, M. S.
THE EFFECT OF IONIZING RADIATION ON THE PROTEINS OF STRUCTURAL ELEMENTS OF THE CYTOPLASM OF THE LIVER CELLS. Apr 58, 13p. 9 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3234

Trans. of Meditsinskaya Radiologiya (USSR) 1957, v. 2 [no. 4] p. 23-30.

White male rats weighing 190 to 210 g were exposed to filtered X-rays (800 r). The yield of mitochondria and microsomes of rat's liver cells did not change in radiation sickness. The moisture content of these structures likewise remained normal. A change was found in the quantity of ribonucleoproteids and lipoproteids in mitochondria and microsomes of the liver cells in radiation sickness. The quantity of water-soluble proteins remained within the normal limits. The most abrupt changes in ribonucleoproteids and lipoproteids in radiation sickness were found in their protein component. This was manifested in much greater changes in the nitrogen contents, as compared with phosphorus.

Langendorff, M[argarete] Melching, H[ans]-J[oachim] and others.
STUDIES ON A BIOLOGICAL IRRADIATION PROTECTION. 21ST REPORT. FURTHER STUDIES ON THE EFFECT OF CENTRAL STIMULATING AND DEPRESSING DRUGS ON THE IRRADIATION SENSITIVITY OF THE ANIMAL. (Untersuchungen über einen biologischen Strahlenschutz. 21. Mitteilung. Weiter Untersuchungen zur Wirkung Zentral-erregender und -Dämpfender Pharmaka auf die Strahlenempfindlichkeit des Tieres). [1959] 14p. (2 figs. omitted) 13 refs.
Order from SLA mi$2.40, ph$3.30 59-15052

Trans. of Strahlentherapie (West Germany) 1957, v. 104, p. 338-340.

The protective effect against irradiation displayed by reserpine (Serpasil) is analysed in detail. There was no significant difference in reaction between male and female mice respectively, nor between a medication 12 and 24 hours prior to irradiation. The degree and pattern of the protection afforded by reserpine correspond to those observed in response to cysteamine and β-amino-ethyl-isothiuronium. Of the other compounds examined, i. e., Isophen (Pervitin), caffeine, Eventin (cyclohexyl-isopropylmethyl-amine), mescaline and 2-brom-lysergic acid-diethylamide, only Isophen afforded protection against irradiation. Evidently, the central nervous as well as peripheral (adrenals) sites of attack may contribute to the protective effect of the afore-mentioned drugs.

Liberman, A. N.
EFFECT OF B-COMPLEX VITAMINS ON THE RESISTANCE OF THE ORGANISM TO RADIATION ACTION. 12 May 59, 9p. (3 figs. omitted) 15 refs. JPRS: L-765-N.
Order from OTS $0.50 59-13467

Trans. of Fiziologichnyy Zhurnal (USSR) 1958, v. 4, no. 6, p. 814-820.

Mushina-Udgodskaya, L. N.
THE EFFECT OF SURROUNDING TEMPERATURE ON THE COURSE OF RADIATION SICKNESS.
17 Mar 59, 7p. 9 refs. JPRS: 1321-N.
Order from OTS $0.50 59-13269

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1958, v. 33, no. 3, p. 23-27.

The effect of surrounding temperature on the mortality rate of rats in acute radiation sickness was studied, using animals acclimatized in a vivarium to temperatures ranging from 5° to 25° C, with dosages of 600 to 950 r. A moderately low temperature was found to exert a favorable influence on the course of acute radiation sickness.

Pihl, A. and Eldjarn, L.
CHEMICAL PROTECTION AGAINST IONISING RADIATION, tr. by J. B. Sykes. [1958] 18p. (1 fig. omitted) 35 refs. NP-tr-196.
Order from SLA mi$2.40, ph$3.30 59-10455

Manuscript trans. of Nordisk Medicin (Sweden) 1958, v. 59, no. 25, p. 833-836.

The substances discussed include glutathione, cysteine, diethyldithiocarbamate, thiourea, sodium cyanide, sodium azide, tryptamine, serpasil, fructose, glucose, pyroracemic acid and propylene glycol. The highest degree of protection attainable in animal experiments is a dose reduction factor approaching 2. The protective substances thus far discovered are relatively toxic in therapeutic doses and their time of effectiveness is short: these substances are therefore mainly of military importance, since they could reduce radiation damage if large populations were temporarily exposed. This paper appears to be essentially a review of the literature.

Pinus, A. A.
PATHOLOGICAL ANATOMY OF LATE PHASES OF RADIATION SICKNESS IN ANIMALS POISONED WITH PRODUCTS OF URANIUM DIVISION, tr. by A. L. Monks. 23 Jan 59 [14]p. (6 figs. omitted) 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3550

Trans. of Arkhiv Patologii (USSR) 1957, v. 19, p. 27-35.

Piontkovskiy, I. A.
THE INFLUENCE OF IONIZING RADIATION ON THE UPPER BRANCHES OF THE CENTRAL NERVOUS SYSTEM (CONFERENCE AT THE INSTITUTE OF HIGHER NERVOUS ACTIVITY). 10 Mar 59, 4p. JPRS: 1343-N.
Order from OTS $0.50 59-13290

Trans. of Akademii Nauk SSSR. Vestnik, 1958, no. 8, p. 125-126.

Most of the papers reviewed in this report were based on animal experiments.

Rodionov, V. M., Uspenskaya, V. D. and others.
THE EFFECT OF GENERAL IRRADIATION BY X-RAYS ON THE RESTORATION OF SERUM PROTEINS IN DOGS AFTER HEMORRHAGE.
16 Mar 59, 18p. (5 figs omitted) 10 refs.
JPRS: L-690-N.
Order from OTS $0.50 59-13298

Trans. of Voprosy Meditsinskoy Khimii (USSR) 1958 v. 4, no. 5, p. 327-338.

An investigation was made of the restoration of serum proteins after massive bleeding in dogs subjected to a preliminary total irradiation with X-Rays in a dose of 500 roentgens. The majority of the dogs in which the bleeding had been accomplished one to six days after the irradiation died. In these dogs an essential disturbance was noted in the processes of restoration of the serum proteins consisting of the absence of the second phase of restoration of albumin and of a markedly increased, progressive entrance into the blood stream of a protein having the mobility of the alpha-globulins. In dogs which had undergone bleeding one and a half months after the irradiation, the picture of restoration of the serum proteins was similar to the picture of restoration of the plasma proteins after bleeding in non-irradiated, intact animals. The facts established indicate that in the acute phase of radiation sickness the processes of production of serum albumin are suppressed. At the same time, the capacity of the body to mobilize extravascular reserves of this protein in the blood stream and to utilize the excesses of alpha$_3$-globulin as the shortage of albumin in the blood stream increases remains unaffected.

Utekhin, Ye. V.
DOSIMETRY IN IRRADIATION OF THE HUMAN HEAD BY GAMMA RAYS. 13 Mar 59, 4p. (3 figs omitted) 4 refs. JPRS: 1322-N.
Order from OTS $0.50 59-13270

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1958, v. 33, no. 3, p. 48-51.

Zubovskiy, G. A.
CHARACTERISTICS OF THE CLINICAL COURSE OF BURN SHOCK UPON IRRADIATION OF THE ORGANISM WITH PENETRATING RADIATIONS.
25 Mar 59, 4p. (3 figs. omitted) JPRS: 1408-N.
Order from OTS $0.50 59-13352

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1958, v. 33, no. 2, p. 84-86.

CHEMISTRY

*AKADEMIYA NAUK SSSR. OTDELENIYE KHIMICHESKIKH NAUK. IZVESTIYA, 1958, NO. 3, P. 257-381 (News of the Academy of Sciences of the USSR, Department of Chemical Sciences). [1959] 1v. [SOV]-62-58-3-(1-30)/30.
Order from OTS $0.70, $4.00/6 mo. PB 141 055T-9
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

USPEKHI KHIMII (USSR) 1958, V. 27, NO. 11, P. 1257-1360 (Progress of Chemistry). [1959] [8]p. SOV-74-27-11-(1-5)/5.
Order from OTS $0.50, $3.00/6 mo. PB 141 070T-10
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

*ZHURNAL OBSHCHEY KHIMII (USSR) 1958, V. 28, NO. 9, P. 2309-2612 (Journal of General Chemistry). [1959] 1v. SOV-79-28-9-(1-63)/63.
Order from OTS $1.40, $7.50/6 mo. PB 141 075T-10
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

*ZHURNAL OBSHCHEY KHIMII (USSR) 1958, V. 28, NO. 10, P. 2617-2907 (Journal of General Chemistry). [1959] 1v. SOV-79-28-101(1-60)/60.
Order from OTS $1.40, $7.50/6 mo. PB 141 075T-11
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

Tagliavini, Giuseppe, Schiavon, Gaetano, and Belluco, Umberto.
A CONTRIBUTION TO THE KNOWLEDGE OF ORGANOMETALLIC COMPOUNDS. REACTIONS BETWEEN TETRAMETHYL LEAD, TETRAETHYL LEAD AND $AuCl_3$. [1958] [14]p. 19 refs.
Order from SLA mi$2.40, ph$3.30 59-10721

Trans. of Gaz[zetta] Chim[ica] Ital[iana] 1958, v. 88 [no. 8/9] p. 746-754.

The reactions taking place between $Pb(CH_3)_4$ - $AuCl_3$ and $Pb(C_2H_5)_4$ - $AuCl_3$ at room temperature in alcoholic solution are described, setting forth the stoichiometry and the conditions pursuant to which there is individual or simultaneous formation of R_3PbCl, R_2PbCl_2 and $PbCl_2$.

Analytical Chemistry

*ZHURNAL ANALITICHESKOY KHIMII (USSR) 1958, V. 13, NO. 5, P. 507-623 (Journal of Analytical Chemistry). [1959] 1v. SOV-75-13-5-(1-24)/24.
Order from OTS $0.90, $5.25/year PB 141 071T-6
Foreign $1.15, $6.75/year

Consists of abstracts in English

Fijolka, P., Lenz, J., and Runge, F.
ANALYSIS METHODS FOR POLYESTERS. [1959] 5p. [1 fig. omitted] 15 refs.
Order from SLA mi$1.80, ph$1.80 59-15665

Trans. of Makromol[ekulare] Chemie (Switzerland) 1958, v. 26, no. 1/2, p. 61-66.

Gel'man, A. D. and Moskvin, A. I.
INVESTIGATION OF THE OXALATE AND CARBONATE COMPLEXES OF PLUTONIUM (IV) IN AQUEOUS SOLUTIONS BY THE SOLUBILITY METHOD, tr. by Lydia Venters. Nov 58, 8p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3496
Trans. of *Akademiya Nauk SSSR. Doklady, 1958, v. 118, p. 493-496.
Another translation is available from CB $5.00 as 59-12361 (p. 61-64) 1958, 4p.

Grigor'yev, A. I., Novoselova, A. V., and Semenenko, K. N.
DETERMINATION OF MOLECULAR WEIGHTS OF DISSOLVED COMPOUNDS BY DIFFUSION THROUGH A POROUS GLASS PLATE. [1959] 7p. 4 refs.
T-2898.
Order from LC or SLA mi$1.80, ph$1.80 59-15029

Trans. of *Zavodskaya Laboratoriya (USSR) 1958, v. 24, no. 2, p. 190-192.

Lomakina, L. N., Tarasevich, N. I. and Agasyan, P. K.
MICROPOTENTIOMETRIC DETERMINATION OF SILVER WITH TRIAZOLES. [1958] 7p. 5 refs.
T-2884.
Order from LC or SLA mi$1.80, ph$1.80 59-10775

Trans. of *Zavodskaya Laboratoriya (USSR) 1958, v. 24, no. 3, p. 270-273.

Mikhailov, M[ikhail] K.
AN INVESTIGATION INTO THE FLAVONOIDS OF THE POLYPHENOL GROUP OF TOBACCO BY THE METHOD OF PAPER CHROMATOGRAPHY (Issledovaniye Flavonoidov Polifenol'noy Gruppy Tabaka Metodom Bumazhnoi Khromatografii). May 57 [4]p. 21 refs. C. T. S. no. 329.
Order from LC or SLA mi$1.80, ph$1.80 59-10145

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 108, no. 3, p. 511-514.

Chromatograms made from samples of fermented grade II Bulgarian tobacco were analyzed to determine the phenol content, wish special attention to the flavonoids. Irregularities in the polyphenol content of various tobaccos appear to be due to quantitative differences rather than to differences in chemical composition.

Model, M. S. and Ukolova, T. P.
PRODUCTION AND X-RAY INVESTIGATION OF THE LOWER OXIDES OF TITANIUM. [1958] 7p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10603

Trans. of Zhur[nal] Neorgan[icheskoy] Khim[ii] (USSR) 1957, v. 2, no. 9, p. 2274-2276.

Modifications of the oxides of titanium, TiO, Ti_2O_3, and Ti_3O_5, were synthetically produced and analyzed to determine the properties of industrial titanium slag. The TiO was obtained by the reduction of TiO_2 with metallic titanium. Pressed compacts of a mixture having stoichiometric composition were heated in a vacuum for 2 hr at 1550° C. This produced only the usual modification of TiO. Temperatures of 1020° and 950° C did not change the original structure

of the product. The reaction $3TiO_2 + Ti = 2Ti_2O_3$ was completed only at temperatures above 1550° C during soaks of about 1 hr. Microscopic examination determined that the product was single phase and had a weight increase of 10.8% during calcination in a stream of oxygen. The Ti_2O_3 had a specific gravity of 4.5 g/cu cm but the X-ray diffraction pattern of the phase was different from that obtained for the α modification of Ti_2O_3 by G. Lunde (Z. anorg. Chem. 146:127, 1925). The reduction of TiO_2 by metallic titanium and by carbon did not successfully produce a single phase sample to Ti_3O_5.

Ochotin, V. P. and Sytschoff, A. P.
A RAPID COLORIMETRIC METHOD FOR THE DETERMINATION OF NICKEL IN ALLOYS. [1959] 3p. 2 refs.
Order from SLA mi$1.80, ph$1.80 59-15302

Trans. of Zeitschrift für Analytische Chemie (Germany) 1932 [v. 90] p. 109-111.

For a copper-nickel alloy, containing about 20% nickel and approximately 80% copper, the procedure is as follows: About 0.01 to 0.015 g is dissolved in 10 cc concentrated HNO_3 diluted up to 25 cc with water. Ammonia is added until the azure-blue copper-ammonia complex is formed, the solution is heated, then 15 cc of a 1% solution of dimethylglyoxime are added, and the entire mixture is placed in a separatory funnel. It is quickly cooled under flowing water, 15 cc of ether are added, and it is shaken. The entire precipitate is transferred to the other layer. The aqueous layer is removed, the ether layer is washed twice with water, and is finally placed in the tube of the colorimeter. To this is added 5 cc of ethyl alcohol and 5 cc of collodion, and thereupon, the volume of the liquid is brought to the standard level (calibration mark). The color is then compared with that of a standard sample. All the operations of the nickel determination can be performed in 5 to 10 minutes with an accuracy up to 1%. For a determination of nickel admixtures in furnace-refined copper, it is necessary to remove the excess of the copper from the nitric acid solution. This can be done electrolytically. A study of such nickel-containing copper consumes approximately 20 to 25 minutes. An accuracy up to 0.02% can be achieved.

Plank, E.
COLORIMETRIC DETERMINATION OF CERIUM. [1959] 4p.
Order from ATS $6.55 ATS-85L30G

Trans. of Z[eitschrift für] Anal[ytische] Chem[ie] (West Germany) 1939, v. 116, p. 312-315.

Potterat, M.
A NEW TECHNIQUE OF PAPER CHROMATOGRAPHY (Une Nouvelle Technique de Chromatographie sur Papier) tr. by J. Hardy. [1958] [7]p. 7 refs. (2 figs. omitted) Trans. no. 3498.
Order from SLA mi$1.80, ph$1.80 59-10908

Trans. of Mitteilungen aus dem Gebiete der Lebensmitteluntersuchungen und Hygiene (Switzerland) 1956, v. 47, no. 1, p. 66-71.

A new technique of circular paper chromatography is described which includes the modifications proposed by Matthias (Naturwissenschaften 41: 18, 1954). Very clearly defined bands are obtained, thus making it possible to separate numerous substances very satisfactorily, including mixtures of sugars, amino acids, organic acids, and purines. A sheet of filter paper is folded, trimmed, and unfolded so that it resembles a disc of 8 Matthias chromographs joined together. The diameter of the disc varies from 15 to 60 cm, depending on the substances to be analyzed and the object of the analysis. Liquid is supplied from a wick made of a tightly rolled square of filter paper inserted into the center of the disc. The primary spots are placed at the outlet of the bridge, so that the bridge itself will be wet. A petri dish is used with a smaller petri dish holding the solvent. The chromograph is supported by a plastic ring 1 cm tall, and the entire setup is covered by a glass sheet. Two procedures, with and without evaporation, are explained. The 2 sections and the spots are adjacent permitting ready comparision of the sections. Variations of the liquid supply controls the separation and sharpening of the spots.

Pribil, Rudolf.
COMPLEXOMETRIC TITRATIONS (CHELATOMETRY): SURVEY AND INTRODUCTION. [1958] 19p. (4 tables, some refs. omitted) 1 ref.
Order from SLA mi$2.40, ph$3.30 59-10980

Trans. of [Chemické Listy (Czechoslovakia) 1953, v. 47, p. 1173-1183].

The solution of complex on III can be used as a measuring device for the determination of a series of cations. The author solves the problem of the individual determinations of cations in mixtures. He studies the question of selective masking with KCN and "demasking" of complex cyanides with chlorohydrate. For the selective precipitation of some cations in solutions before their titrations, he suggests using sodium diethyldithiocarbamine which is also a good reagent for selective extraction. Several examples of successive measured determinations of some cations are given, such as Mg, Zn, Ni, Pb, Cd, and Zn, Bi and Pb and Cd, Zn and Al, etc. The author sees an exception, in these determinations and others similarly studied, in special analyses of alloys and ores.

Schöniger, W.
THE MICROANALYTICAL RAPID DETERMINATION OF HALOGENS AND SULFUR IN ORGANIC COMPOUNDS. [1958] 13p. 11 refs.
Order from SLA mi$2.40, ph$3.30 59-10719

Trans. of Mikrochim[ica] Acta (Austria) 1956 [no. 4/6] p. 869-876.

A combustion method is described which accomplishes in most simple fashion and in a short time the determination of the sulfur or halogen content of organic compounds. Little apparatus is required, and by following the recommended titrimetric procedures accurate analytical results are obtained, which lie within the usual limits of error: ±0.3%.

Schulek, E. and Pungor, E.
NEW METHODS IN GAS ANALYSIS. II. TITRIMETRIC DETERMINATION OF GAS MIXTURES (Neue Wege in der Gasanalyse. II. Titrimetrische Bestimmung von Gasgemischen). [1958] [11]p. 12 refs. Tr57-105.
Order from SLA mi$2.40, ph$3.30 59-10584

Trans. of Mikrochimica Acta (Austria) 1956, no. 7, p. 1120-1135.

Descriptions are presented of (1) macro and micro methods for iodometric determination of oxygen in gas mixtures, and (2) iodometric determination of nitrogen oxides.

Schulek, E., Pungor, E., and Trompler, J.
NEW METHODS IN GAS ANALYSIS. PART IV. MICROCHEMICAL DETERMINATION OF PHENOL VAPOR PRESSURE. [1959] 6p.
Order from ATS $9.00 ATS-82L29G

Trans. of Mikrochim[ica] Acta (Austria) 1958, p. 52-59.

Sommer, L[umir].
ANALYTICAL REACTIONS OF SALICYLIC ACID AND ITS DERIVATIVES, AND SPECTROPHOTOMETRIC INVESTIGATION OF THE COMPLEXES OF Ti^{4+} WITH SULPHOSALICYLIC ACID. [1959] [13]p. 12 refs. A. C. S. I. L. Trans. no. 985.
Order from SLA mi$2.40, ph$3.30 59-15013

Trans. of Chem[ické] Listy (Czechoslovakia) 1956, v. 50 [no. 11] p. 1702-1711.

Tverdovskiy, I. P. and Tupitsyn, I. F.
INVESTIGATION ON THE NICKEL BORIDE CATALYST. [1959] 9p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15324

Trans. of Problemy Kinetiki i Kataliza (USSR) 1957, v. 9, p. 84-90.

Wagner, F[ritz] and Vitt, R[ichard].
SPECTROSCOPIC DETERMINATION OF TRACES OF ARSENIC IN NAPHTHA REFORMATE. [1958] 3p. 1 ref.
Order from SLA mi$1.80, ph$1.80 59-10178

Trans. of Erdöl und Kohle (West Germany) 1958, v. 11, no. 7, p. 460-461.

A procedure for measuring the amount of arsenic in naphtha used in gasoline reformation is described which employs a minimum amount of reagents and glass apparatus.

Inorganic Chemistry

PROCESS FOR PREPARING NITROGEN-PHOSPHORIC ACID COMPOUNDS CONTAINING ACTIVE CHLORINE [24 Oct 58] 4p.
Order from RIS $7.00 RIS-96944

Trans. of German patent application H 28 196 (12i, 31) DAS 1 033 190, by Henkel & Cie., G. m. b. H., Düsseldorf-Holthausen, filed 27 Sep 56, pub. 3 July 58.

A process for obtaining nitrogen-phosphoric acid compounds, containing active chlorine, is described. The reaction consists of chlorinating nitrogen-phosphoric acid compounds, containing at least one amido group, with hypochlorous acid. The best suited nitrogen-phosphoric acid compounds are those which are obtained by reaction of phosphorus pentoxide or phosphoric acid with ammonia, urea, substituted ureas or carbamates. The compound to be chlorinated is dissolved in H_2O, and a sodium hypochlorite solution is added with vigorous stirring. The chlorination takes place at a pH of 7 to 12 and a temperature of 0° to $30^{\circ}C$. Examples are given in which the end product has an active Cl content of 11 to 22%. The products are useful as water softeners with a bleaching effect, and can be added to detergents and cleaning agents.

PRODUCTION OF ALKALI PYROPHOSPHATES AND POLYPHOSPHATES FROM ALUMINUM PHOSPHATES. [9 Jan 59] 7p.
Order from RIS $12.50 RIS-96949

Trans. of German patent application C 11 654 (12i, 31) DAS 1 019 648, by Chemische Werke Albert, Wiesbaden-Biebrich, filed 4 Aug 55, pub. 21 Nov 57.

Alkali pyrophosphate and polyphosphate and alkali aluminate are readily obtained by dissolving natural or synthetic aluminum phosphate in a mineral acid, freeing the resultant solution from any residue present, and precipitating enough Al salt of the acid to obtain a ratio of base equivalents to phosphoric acid corresponding to that found in pyrophosphate or polyphosphate. The resultant solution is dehydrated, heated, and reacted with NaOH to form the expected products. Treating Al_2PO_4 with a mineral acid leads to formation of a crystallized Al salt and a precursory mixture of Al pyro- or polyphosphate, which is heated to volatilize the added excess acid and convert the precursors into intermediates for treatment with an alkali. Yields are increased by the use of Fe or Ca phosphates in the Al_2PO_4 when heating. Only enough Al salts are precipitated to leave a mixture capable of forming the Al pyrophosphate or polyphosphate dissolved in the solution. The Al salts formed as by-products in this process are important industrial products, or may be used to produce aluminum phosphate, which is a starting material for this process.

ZHURNAL NEORGANICHESKOY KHIMII (USSR) 1958, V. 3, NO. 4, P. 841-1062 (Journal of Inorganic Chemistry). [1959] 1v. [SOV]-78-3-4-(1-38)/38.
Order from OTS $0.80, $4.50/6 mo. PB 141 074T-5
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

ZHURNAL NEORGANICHESKOY KHIMII (USSR) 1958, V. 3, NO. 9, P. 1993-2222 (Journal of Inorganic Chemistry). [1959] 1v.
SOV-78-3-9-(1-38)/38.
Order from OTS $0.80, $4.50/6 mo. PB 141 074T-7
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

ZHURNAL NEORGANICHESKOY KHIMII (USSR) 1958, V. 3, NO. 11, P. 2433-2592 (Journal of Inorganic Chemistry). [1959] 1v. SOV-78-3-11-(1-23)/23.
Order from OTS $0.80, $4.50/6 mo. PB 141 074T-6
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

Ginsberg, Hans, Hüttig, Werner and Strunk-Lichtenberg, Gusti.
THE INFLUENCE OF RAW MATERIAL IN CRYSTALLINE FORMS PRODUCED DURING THERMAL DECOMPOSITION AND TRANSFORMATION, RESPECTIVELY, OF ALUMINUM HYDROXIDES. II. INFLUENCE OF THE RAW MATERIAL ON THE COURSE OF DECOMPOSITION OF γ HYDROXIDES. [1959] 15p. (3 figs. omitted) 11 refs.
Order from SLA mi$2.40, ph$3.30 59-15075

Trans. of Z[eitschrift für] Anorg[anische] Chem[ie] (East Germany) 1957, v. 293 [no. 3/4] p. 204-213.

The influence of the raw material on the stability of individual forms is investigated as well as the influence of lattice transformation and the possible reversible processes which might result in "re-hydroxidation." Light and electron optical photographs served for a characterization of intermediate forms found. A comparison of results with those of Feitknecht and Buser (Z. Elektrochem. 60: 789, 1956) with hydroxides of bivalent metals led to conclusions which let the problem of crystalline forms of the γ-group appear in a new light.

Mirzadzhanzade, A. Kh. and Mustafayev, V. V.
DISPLACEMENT OF GAS BY WATER IN A POROUS MEDIUM. [1959] 6p.
Order from ATS $8.55 ATS-67L30R

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izvest[iya] 1958, no. 11, p. 95-97.

Neshpor, V. S., Paderno, U. B., and Samsonov, G. V.
ON THE BORIDES OF RHENIUM. tr. by N. H. Krikorian and A. Skumanich. [1958] 5p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3523

Trans. of [*Akademiya Nauk SSSR. Doklady] 1958, v. 118, no. 3, p. 515-516.
Another translation is available from CB $5.00 as 59-12361 (p. 85-86) [1958] [2]p.

The compositions of the phases of rhenium-boron alloys were investigated in which the preparations were computed on the possibility of chemical compounds existing in the systems boron-tungsten, molybdenum and manganese: Re_4B, Re_2B, Re_3B_2, ReB, Re_3B_4, Re_2B_3, ReB_2 and Re_2B_5. The alloys were prepared by sintering pressed mixtures of powders of rhenium and boron in a vacuum laboratory furnace (Zavodskaya Laboratoriya 19: 169, 1953) on blocks of boron carbide at 1900°C in the course of 0.5 to 2 hours. The starting powder contained 99.966% Re and insignificant quantities of impurities: 0.008%K; 0.006% Na; 0.013% Ca; 0.003% Fe; 0.001% Al; 0.001% Cu; 0.003% Ni. The boron powder was obtained by vacuum purification by the induction heating of amorphous boron and contained 99.8% B. The x-ray diffraction patterns of the samples were photographed by Cu radiation in an RKD camera, diameter 57.3 mm., by the powder method. The cylindrical samples of 0.8 mm. diameter were prepared in paraffin fibers for the prevention of chemical reaction with the atmosphere (Zavodskaya Laboratoriya 22: 1120, 1956). Beginning with the compound Re_4B, the step wise rebuilding of the lattice of rhenium was observed. An increase in the boron content was accompanied with a step wise change in the appearance of the x-ray diffraction pattern. Beginning with 50 at.-% boron, the x-ray diffraction patterns of all the samples were almost identical. In spite of the absence of changes of structure during the transition from one alloy to another, a noticeable difference between the compositions of the x-ray diffraction samples was observed in these x-rays further remote from one another. Closer similarities of the x-ray diffraction patterns of the alloys were observed within the region of composition 20 to 35 at.-% B and 40 to 80 at.-% B than between these two regions, indicating the presence of two phases in the system ReB.

Pischinger, E. and Tomaszewski, J.
THE SESQUICARBONATE OF SODIUM. II. THE SYSTEM Na_2CO_3-$NaHCO_3$-H_2O. [1959] 9p.
Order from ATS $12.75 ATS-86L29P

Trans. of Przemys Chem[iczny] (Poland) 1958, v. 37, p. 411-415.

Rode, E. Ya.
OXYGEN COMPOUNDS OF MANGANESE, tr. by A. Pingell. 1959 [8]p. NRL Trans. no. 728.
Order from OTS $0.50 59-21018

Trans. of table of contents of mono., Kislorodnye Soyedineniya Margantsa, 1952.

Tarasov, V. V.
COMMON FEATURES IN THE STRUCTURES OF SEMICONDUCTORS HIGH-POLYMERS AND GLASSES. 16 Feb 59, 6p. 21 refs. TT-29.
Order from LC or SLA mi$1.80, ph$1.80 59-15003

Trans. of Zh[urnal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 9, p. 2221-2223.

Vertoprakhov, V. N. and Grigor'yeva, A. G.
PRODUCTION AND INVESTIGATION OF CERTAIN PROPERTIES OF THE INTERMETALLIC COMPOUND ALUMINUM ARSENIDE. 2 Apr 59. 4p. 3 refs. TV-21.
Order from LC or SLA mi$1.80, ph$1.80 59-14735

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. [Fizika] (USSR) 1958, no. 5, p. 133-134.

A method is described of producing the intermetallic compound ALAS and attempts to grow single-crystals. Preliminary experiments have been made to measure the kind of conductivity, specific resistivity, thermal emf, heat conduction, electrical current rectification at a point contract and the micro-hardness.

Organic Chemistry

PROCESS FOR PREPARING AQUEOUS POLYAMIDE DISPERSIONS. [9 Jan 59] 7p.
Order from RIS $12.75 RIS rept. 61022

Trans. of German patent application B 40 025 (39b, 22/04) DAS 1 028 328, by Badische Anilin- und Soda-Fabrik A. G., Ludwigshafen, filed 27 Apr 56, pub. 17 Apr 58.

Aqueous dispersions containing little or no solvent which yield cohesive films can be prepared from solutions of polyamides in organic solvents. The solvent must be wholly or partially removed by distillation from solutions of polyamides with cocondensed dicarboxylic acids bearing aliphatic hydrocarbon radicals with at least 6 carbon atoms as side chains. The solutions are dispersed in aqueous dispersing agent solutions such as copolymers of unsaturated lactams and other soluble polymeric substances. The polyamides are prepared from dicarboxylic acids or functional derivatives of them in the presence of metal carbonyls or carbonyl forming metals. The solvent may be an alcohol, such as methanol, ethanol, butanol, propanol, or a phenol, cresol, or chlorinated hydrocarbon. The resulting dispersions are clear films with very high mechanical strength. They are water and oil proof, and are used as protective coatings on wood, metal, paper, and other materials. The dispersions may contain both the polyamides and other coating materials, including polymers of esters of unsaturated monocarboxylic and dicarboxylic acids, or thermosetting resins. They may also be mixed with dispersions or emulsions of other film-forming substances, such as etherified urea resins, polymers and copolymers of acrylic and vinyl compounds, or polyesters.

PROCESS FOR PROLONGING THE STORAGE LIFE OF PEROXIDE-CATALYZED UNSATURATED POLYESTER RESIN COMPOUNDS. [27 Mar 59] 5p.
Order from RIS $6.75 Rept. 61048

Trans. of German patent application C 12 208 (39b, 22/10) DAS 1 046 874, by Chemische Werke Huels, A. G., Marl, filed 12 Nov 53, pub. 18 Dec 58.

The storage life of peroxide-catalyzed unsaturated polyester resin compounds of unsaturated polyesters and copolymerizable, monomeric, unsaturated compounds, or of partly polymerized resin compounds of this type is prolonged by adding esters of phosphoric acid in a molar ratio to the peroxides of 1:1. Suitable esters are the neutral and acid esters of possibly substituted aliphatic, cycloaliphatic, or aromatic-aliphatic alcohols, such as trimethyl, triethyl, tripropyl, tributyl, triisobutyl, trioctyl, tricyclohexyl, tribenzl, trichloroethyl, trichloropropyl, dimethyl, diethyl, dipropyl, dibutyl, diisobutyl, dioctyl, dicyclohexyl, dibenzyl, dichloroethyl, and dichloropropyl phosphite. Esters obtained from partial transesterification are also suitable. The stabilization effect is produced because the phosphites cause the polymerization to die down or fail to initiate. When more catalyst is added, polymerization begins. Undesirable side effects caused by previous stabilizing agents are avoided.

Al'tman, S. S.
COMPARISON OF POLYETHYLENE GLYCOL DIESTERS WITH DIBASIC ALIPHATIC ACID DIESTERS. [1959] 4p.
Order from ATS $4.00 ATS-94L29R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 11, p. 13-15.

Blanchard, L.
SYNTHESIS OF A NEW CLASS OF MIXED COMPOUNDS OF THE FORM RO-CH_2-O-CH $\begin{matrix}CH_2X\\CH_2X\end{matrix}$, BY ADDITION TO EPICHLORHYDRIN. [1958] 2p.
Order from SLA mi$1.80, ph$1.80 59-10672

Trans. of Soc[iété] Chim[ique de France]. Bull[etin] [1926] v. 39, no. 4, p. 1263-[1265].

Chernyak, N. Ya., Bubnov, N. N. and others.
FORMATION OF FREE RADICALS AND ATOMS DURING RADIOLYSIS OF HYDROCARBONS AT A TEMPERATURE OF 77° K. 3 Feb 59, 5p. (2 figs. omitted) 6 refs. JPRS: L-1455-D.
Order from OTS $0.50 59-11441

Trans. of Akademiya Nauk SSSR. Doklady. 1958, v. 120, no. 2, p. 346-348.
Another translation is available from OTS $0.50 as 59-11862, TG-230-T61, 22 Dec 58, 7p.

The hydrocarbons hexane, heptane, octane, dodecane cetane, isooctane, cyclohexane, benzene and toluene, were sealed in a carefully evacuated quartz ampule with a diameter of 2 to 4 mm and placed in the bottom of a Dewar flask which was kept constantly filled with liquid nitrogen. Identity and concentration of the

radicals were determined by transfering the irradiated samples in the frozen state (77°K) into a special, plastic Dewar flask, placed in the resonator of an electron paramagnetic resonance (EPR) spectrometer. An instrument providing high frequency modulation of the magnetic field, was used to establish the presence of radicals and to determine the nature of the hyperfine structure of corresponding EPR spectra of hydrocarbons under investigation. Results showed the presence of a large number of hyperfine structures and a magnitude of cleavage of 25 oersteds. According to Gordy and McCormick (J. Am. Chem. Soc. 78, 3243, 1956) this indicates that there is a displacement of hydrogen atoms in the radical in relation to the fixed carbon skeleton resulting in a hyperfine structure and that there is a noticeable density of the unpaired electron in the hydrogen atoms. The hyperfine structure also indicates that both α and β hydrogens take part in the cleavage. A comparison of the spectra of hexane, heptane and cetane showed an odd number of components in the hyperfine structure of hexane and heptane, thus indicating greater rupturing at the CH bond while the hyperfine structure of cetane showed an even number of components, thus indicating greater rupture at the CH_2 bond.

Collin, Jacques.
COMPARATIVE STUDY OF AMINE AND ALIPHATIC ALCOHOL INTRAMOLECULAR REARRANGEMENTS UNDER ELECTRON IMPACT (Etude Comparative des Réarrangements Intramoleculaires des Amines et des Alcools Aliphatiques sous l'Impact Électronique). [1957] 16p. 9 refs. Tr57-51.
Order from SLA mi$2.40, ph$3.30 59-10594

Trans. of Soc[iété] Roy[ale des] Sci[ences de] Liége. Bull[etin] 1954, v. 23 [no. 11] p. 377-394.

The important rearrangement phenomena presented by amines was studied. Formulas were proposed for the ion arrangements, including those of formula NH_3 and NH_4; ions appearing in tert-butylamine and di-i-propylamine; the ion of the straight chain primary amines, CH_2NH_2; the ion in di-secbutylamine and the one most abundant in the secondary amines; the ion found in the C_5, C_6, and C_7 normal primary amines; the one found in di-i-butylamine, di-sec-butyl amine and triethylamines; and one formed only in isobutylamine. Most amine arrangements resulted from migration of the H atoms to the electro-negative N atom, from migration of H atoms to a substituted C, sec or tert, or by successive decomposition of a given rearranged parent ion. In comparing studies on the rearrangement processes of the alcohols with those of the amines, the OH_2^+ and OH_3^+ ions reacted the same as the NH_3^+ and NH_4^+ ions observed in the amines. The CH_2OH reaction was similar to the CH_2NH_2 peak of the aliphatic amine. The process is different for the corresponding hydrocarbons, which have a polar center in the molecule. Molecules with a polar center ionize on the heteroatom 6, 7, which becomes positive and influences reorganization of atoms in the excited molecule. The percent of rearranged ions appearing in the spectrum, and the total ionization are presented in tables. Rearrangement phenomena are important, with the exception of methylamine, isobutylamine and the corresponding alcohols, when the hetero atom is substituted.

Englin, A. L., Sonin, E. V. and others.
PROCEDURE FOR THE MANUFACTURE OF PERCHLOROVINYL RESIN. [1958] 2p.
Order from ATS $4.50 ATS-12L29R

Trans. of Russian author's certificate 105, 456, filed 20 Sep 54.

Kagan, Yu. S.
THE DEPENDENCE OF THE TOXICITY OF CERTAIN ORGANOPHOSPHOROUS INSECTICIDES ON THEIR CHEMICAL STRUCTURE. 12 May 59, 16p. 11 refs. JPRS: L-763-N.
Order from OTS $0.50 59-13462

Trans. of Gigiyena Truda i Professional'nyye Zabolevaniya (USSR) 1958, [v. 2] no. 5, p. 7-15.

Knunyants, I. L., Sterlin, R. N. and others.
REACTIONS OF FLUOROOLEFINS. PART 8. REACTIONS OF PERFLUOROVINYLMAGNESIUM HALIDES. [1959] 4p.
Order from ATS $6.80 ATS-90L29R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1958, no. 11, p. 1345-1347.

Kolesnikov, G. S. and Klimentov, N. V.
CHAIN POLYMERS AND CO-POLYMERS (CARBONACEOUS) REPT. 5. THE CO-POLYMERIZATION OF ACRYLONITRILE AND METHYL METHACRYLATE IN THE PRESENCE OF TRI-BUTYL BORON. [1959] [9]p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15260

Trans. of *Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1958, no. 11, p. 1383-1387.

The co-polymerization of acrylonitrile and methyl methacrylate in toluene in the presence of tri-butyl boron and an ester of boron fluoride was studied and the effect of different factors on the course of the co-polymerization process was determined.

Koretskaya, T. A. and Karpov, V. L.
INVESTIGATION OF THE SHAPE AND SIZE OF MACROMOLECULES BY THE METHOD OF ELECTRON MICROSCOPY (Izucheniye Formy i Razmerov Makromolekul Elektronno-Mikroskopicheskim Metodom) tr. by Marcel I. Weinreich. [1958] 6p. 4 refs. (foreign text included)
Order from LC or SLA mi$1.80, ph$1.80 SCL-T-208

Trans. of *Akademiya [Nauk] SSSR. Doklady, 1956, v. 111, no. 3, p. 621-622.

Liberman, A. L., Loza, G. V. and others.
CATALYTIC CYCLIZATION OF N-PENTANE AND OF N-HEXANE WITH THE FORMATION OF A FIVE-MEMBERED RING. [1958] 5p. 9 refs. Trans. Adm. 264-58.
Order from LC or SLA mi$1.80, ph$1.80 59-10893

Trans. of Akad[emiya] Nauk SSSR. Doklady] 1958, v. 120, no. 4, p. 789-792.

Momigny, J. and Natalis, P.
STUDY OF THE INFLUENCE OF THE ACCELERATING POTENTIAL OF ELECTRONS ON THE MASS SPECTRA OF SOME 1,2-DIALKYLCYCLOPENTANES (Etude de l'Influence du Potential Accelerateur des Electrons sur les Spèctres de Masse de Quelques 1,2-Dialkylcyclopentanes). [1957] [7]p. 3 refs. Tr57-171.
Order from SLA mi$1.80, ph$1.80 59-10588

Trans. of Soc[iete] Chim[ique de] Belg[ique]. Bull[etin] 1957, v. 66 [no. 1/2] p. 26-32.

Dimethylcyclopentanes were examined by progressively decreasing values of the electron accelerating potentials to determine if any more sensitive differences could be found between ion masses produced at the expense of a pair of isomers. The difference between amounts of ions with the same number of carbon atoms as the accelerating potential of the electrons decreased was marked for the C_4, C_5, and C_7 ions, and was more important as the accelerating potential decreased. The differences were even more accentuated below a 15 volt electron energy value. The abnormal ion currents result from excitation of molecules or radicals in the space between the filament and the electron accelerating plate. The excited molecules diffuse into the ionization chamber and can then be ionized by electrons with less energy than is normally required to ionize non-excited particles. Mass spectrometry analysis of geometric isomer pairs in mixtures may be possible by employing variations of ion abundances as a function of the accelerating potential of the electrons. The decomposition mechanism of metastable ions may be produced in the ionization chamber as well as in the analyzer tube. If all the ions of a given mass susceptible to decomposition reach the interior of the ionization chamber, a metastable transition will not appear at all. Small fragments of ions in cyclopentane increased as a function of the electron energy, at a value of electron energy superior to the appearance potential of the ions considered. There was a complementary relation between the variation of the superfluity of the generating ions and the ions produced.

Nakazawa, Koichi and Baba, Shigeo.
STUDIES ON THE APPLICATION OF POLYPHOSPHORIC ACID AS A CONDENSING AGENT. VIII. ACYLATION OF PHENOL BY MEANS OF SUBSTITUTED BENZOIC ACIDS. [1959] 10p. 11 refs. T-2888.
Order from SLA mi$1.80, ph$1.80 59-15021

Trans. of [Yakugaku Zasshi] (Japan), 1955, v. 75, no. 4. p. 378-381.

Results of studies are presented on the high-temperature-acylation of phenols with benzoic acid derivatives having CH_3, OH, OCH_3, Cl or NO_2 group, at ortho, meta or para position in the benzene nucleus.

Natta, G., Pino, P., and Mazzanti, G.
SYNTHESIS AND STRUCTURE OF A FEW CRYSTALLINE POLYHYDROCARBONS CONTAINING ASYMMETRIC CARBON ATOMS IN THE MAIN CHAIN. [1958] 20p. 15 refs.
Order from SLA mi$2.40, ph$3.30 59-10767

Trans. of la Chimica e l'Industria (Italy) 1955, v. 37, no. 12, p. 927-932.
Another translation is available from ATS $10.75 as ATS-86L28I [1958] 9p.

Nazarova, N. M., Balandin, A. A. and Freydlin, L. Kh.
THE CATALYTIC ALKYLATION OF n-BUTANE BY ETHYLENE AT HIGH TEMPERATURES AND PRESSURES. 11 Nov 58, 8p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10517

Trans. of *Akad[emiya] Nauk SSSR. Doklady, 1958, v. 121 [no. 5] p. 865-868.

Nesmeyanov, A. N. and Vol'kenau, N. A.
ACYLATION OF ACETYL FERROCENE AND ETHYL FERROCENE (Atsilerovaniye Atsetil-i Etilferrotsena). [1958] [6]p. 3 refs. Tr57-75.
Order from LC or SLA mi$2.40, ph$3.30 59-10557

Trans. of *Akad[emiya] Nauk SSSR. Doklady, 1956, v. 111 [no. 3] p. 605-608.

Isomeric acetylethyl ferrocenes were isolated in the form of semicarbazones (SC-1, mp 190° to 192°, and SC-II, mp 141° to 142°). The ketones forming SC-I, SC-II and the diketone are obtained in a yield ratio of 3.5:1:1, respectively. All three ketones were reduced by the Clemmensen method, semicarbazones hydrolyzing in the acid reaction medium being introduced into the reaction directly. SC-II yielded 1,1'-diethyl ferrocene (n_D^{20} 1,5800) described previously (Akad. Nauk SSSR Doklady 107:262, 1956) with ethyl groups in the different cyclopentadienyl rings. SC-I yielded isomeric 1,x-diethyl ferrocene (n_D^{20} 1.5761). In this compound, the ethyl groups can be arranged only in one ring, a fact that was confirmed by bromination of the substance. The action of bromine on 1,x-diethyl ferrocene results in the formation of pentabromocyclopentane, at the expense of the unsubstituted cyclopentadienyl ring. Bromination of 1,1'-diethyl ferrocene does not result in the formation of pentabromocyclopentane. The reduction of diacetylethyl ferrocene yielded triethyl ferrocene, n_D^{20} 1.5613. The experiments showed that in the ferrocene molecule the cyclopentadienyl ring containing the acetyl group is less reactive and that the substituted ethyl group is somewhat more reactive than the unsubstituted ring, in terms of the Friedel-Crafts reaction.

Olsson, Hugo.
THE DEPENDENCE OF THE VELOCITY OF HYDROLYSIS OF ESTERS UPON THE CONSTITUTION. [1958] 9p. 11 refs.
Order from SLA mi$1.80, ph$1.80 59-10686

Trans. of Zeitschrift fur Physikalische Chemie (Germany) 1927, v. 125, p. 243-250.

Petrov, A. A., Razumova, N. A., and Genusov, M. L.
STUDIES IN THE FIELD OF CONJUGATED SYSTEMS. PART XCV. REACTION OF PIPERYLENE WITH ITS HCl ADDITION PRODUCT AND WITH THE 1,4 HCl ADDITION PRODUCT OF ISOPRENE. [1959] 6p.
Order from ATS $8.85 ATS-82L30R

Trans of *Zhur[nal] Obshchey Khim[ii] (USSR) 1958, v. 28, no. 12, p. 3220-3224.

Polak, L. S., Topchiyev, A. V. and others.
SPECTROSCOPIC STUDY OF RADIOLYSIS OF HYDROCARBONS. [1958] [9]p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3416
Trans. of [Akademiya Nauk SSSR. Doklady] 1958, v. 119, no. 1 [p. 117-120].

Results are described of the radiolysis of alkanes under the action of gamma-radiation with the installations uning the gamma radiation of Co^{60}, whose nominal power was 1400 and 20,000 Cu. The irradiation was conducted in vacuumed, dioxidized and sealed glass ampoules. Upon opening the ampoules, the gaseous and liquid phases of the radiolysis products were subjected to separate studies. The basic portion of the work was conducted with heptane, but there were also studied some other available individual normal alkanes, isooctane and cyclohexane. The absorption spectra in the ultraviolet region were recorded on the spectroscope with an attachment for the automatic registration of the absorption curves at the Optical Laboratory of the Institute of elemente-organic compounds of the Acad. Sci. USSR. The spectra were recorded in the region of 30 to $45 \cdot 10^3 cm^{-1}$, and in the individual cases, they were recorded in the region of 25 to $45 \cdot 10^3 cm^{-1}$. The irradiated n-hexane, heptane and octane possess similar absorption curves with the maximum absorption in the region of 40 to $44 \cdot 10^3 cm^{-1}$. The absorption spectrum of the irradiated isooctane is very close to the spectrum of the irradiated octane. In the spectrum of the irradiated dodecane, and, even to a higher degree, in the spectrum of the irradiated cetane, in addition to the indicated band, there appears a band in the region of longer wave lengths. The spectrum of the irradiated cyclohexane differs from the spectrum of hexane and of other normal hydrocarbons which received a dose of $40 \cdot 10^6 r$.

Schwaner, K.
THE HARDENING OF o-CRESOL-FORMALDEHYDE RESINS. [1959] 3p.
Order from ATS $5.80 ATS-92L29H

Trans. of Magyar Kém[ikusok] Lapja (Hungary) 1958, v. 13, p. 68-69.

Shigorin, D. N., Shemyakin, M. M., and Kolosov, M. N.
INTERMOLECULAR REACTIONS OF ACETYLENE AND ITS DERIVATIVES. 20 Nov 58 [3]p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-10524

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1958 [no. 9] p. 1133-1134.

Shostakovskiy, M. F., Kochkin, D. A., and Vinogradov, V. L.
UNSATURATED COMPOUNDS OF SILICON. [1959] [52]p. 119 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-15000

Trans. of Uspekhi Khimii (USSR) 1958, v. 27, no. 10, p. 1221-1256.

Contents:
Vinyl compounds of silicon
Allyl compounds of silicon
Unsaturated silico-organic compounds of the acetylemic series
Polymerization and copolymerization of unsaturated compounds of silicon

Simonetta, Massimo.
PROBABLE ELECTRONIC STRUCTURE OF FERROCENE (Probabile Struttura Elettronica del Ferrocene). [1958] [5]p. 17 refs. Tr57-41.
Order from SLA mi$1.80, ph$1.80 59-10559

Trans. of la Ricerca Scientifica [ed il Progresso Technica nell'Economia Nazionale] (Italy) 1953, v. 23 [no. 7] p. 1234-1237.

Skorkin, L. V., Gluzman, M. Kh. and others.
PROCEDURE FOR REMOVING BASES FROM THE AQUEOUS ALKALINE SOLUTIONS OF POLYETHYLENE RESINS. [1958] 2p.
Order from ATS $5.00 ATS-13L29R

Trans. of Russian author's certificate 105 505, class 12d, 1_{05}, filed 2 Aug 56, under 556,551 with the Committee on Inventions and Discoveries of the Council of Ministers of the USSR.

Skrabal, A[nton] and Hugetz, A[nna] M[aria].
ON THE INFLUENCE OF THE ALCOHOL COMPONENT ON THE SPEED OF SAPONIFICATION OF THE ACETIC ACID ESTERS. [1958] 19p. 84 refs.
Order from SLA mi$2.40, ph$3.30 59-10739

Trans. of Monatshefte für Chemie (Austria) 1926, v. 47, p. 17-38.

Tronov, B. V. and Kulikova, R. M.
THE USE OF VARIOUS METALS IN THE STUDY OF ORGANIC COMPOUNDS BY THE ELECTROMOTIVE FORCE METHOD. PART I. INDIVIDUAL ORGANIC COMPOUNDS. [1958] 7p.
Order from ATS $9.45 ATS-67K23R

Trans. of Tomsk U. Trudy (USSR) 1954, v. 126, p. 96-102.

Turunen, L. and Berndtsson, B.
EFFECT OF DIFFERENT FACTORS ON THE CURING OF UNSATURATED POLYESTERS AT ELEVATED TEMPERATURES. [1959] 13p.
Order from ATS $14.95 ATS-70L30G

Trans. of Kunststoffe (West Germany) 1959, v. 49, no. 1, p. 9-14.

Vansheidt, A. A., Mel'nikova, E. P. and others.
SOLUBLE POLY-p-XYLYLENE. [1959] 4p.
Order from ATS $6.45 ATS-59L29R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1958, v. 31, no. 12, p. 1898-1900.

Yakushkina, S. E. and Kislyakova, N. V.
CARBONYLATION OF p-DICHLOROBENZENE. [1959] 4p.
Order from ATS $6.80 ATS-19L30R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk, 1958, no. 9, p. 1119-1122.

Yarovenko, N. N. and Vasil'yeva, A. S.
A NEW METHOD OF INTRODUCING THE TRIHALOMETHYL GROUP INTO ORGANIC COMPOUNDS. [1959] 3p.
Order from ATS $4.05 ATS-76L29R

Trans. of *Zhur[nal] Obshchey Khim[ii] (USSR) 1958, v. 28, no. 9, p. 2502-2504.

Physical Chemistry

ZHURNAL FIZICHESKOY KHIMII (USSR) 1958, V. 32, NO. 3, P. 481-733 (Journal of Physical Chemistry). [1959] 1v. [SOV]-76-32-3-(1-43)/43.
Order from OTS $1.10, $6.00/6 mo. PB 141 072T-9
Foreign $1.35, $7.50/6 mo.

Consists of abstracts in English.

ZHURNAL FIZICHESKOY KHIMII (USSR) 1958, V. 32, NO. 9, P. 1937-2228 (Journal of Physical Chemistry). [1959] 1v. SOV-76-32-9-(1-46)/46.
Order from OTS $1.10, $6.00/6 mo. PB 141 072T-10
Foreign $1.35, $7.50/6 mo.

Consists of abstracts in English.

Aleksandrov, B. N. and Verkin, B. I.
THE LENGTH OF A FREE PATH OF ELECTRONS IN TIN OF HIGH PURITY (Dlina Svobodnogo Probega Elektronov v Olove Vysokoi Chistoty) tr. by A. Pingell. 1958 [4]p. 10 refs. NRL Trans. no. 707.
Order from LC or SLA mi$1.80, ph$1.80 59-10236

Trans. of *Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1958, v. 34, no. 6, p. 1655-1656.

Baronowskiy, B.
TRANSPORT AND DISTRIBUTION OF COMPONENTS OF METALLIC MELTS IN AN ELECTRIC FIELD. Some Remarks on the Work of S. I. Drakin. [1959] 4p. (1 table omitted) 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15035

Trans. of [Zhurnal Fizicheskoy Khimii] (USSR) 1954, v. 28 [no. 9] p. 1676-[1677].

A previous theoretical examination of the phenomenon of relative transport of components of metallic melts in a constant electric field made by S. I. Drakin (Zhur. Fiz. Khim. 27: 1586, 1953) is criticized. The approach of Drakin is shown to be an application of the method applied by W. Thompson (Proc. Roy. Soc. Edinburgh 3: 225, 1854) to thermoelectric phenomena in metals.

Damaskin, B. B., Nikolayeva-Fedorovich, N. V., and Frumkin, A. N.
ON THE ADSORPTION OF THE Cs^+ ION ON THE SURFACE OF A MERCURY ELECTRODE. [1958] 8p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10326

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1958, v. 121, no. 1, p. 129-132.

Measurements were made of the magnitude of the differential capacity on the Hg electrode in the form of a suspended drop, in NaF and CsF solutions of 0.9, 0.1 and p.01N, as well as in 0.9 and 0.1N solutions of NaI and CsI. Results were plotted. The capacity measured in NaF solutions (0.9 and 0.01N) agreed with the results of D.C. Grahame (J. Am. Chem. Soc. 76: 4819, 1954) except there was no rise at extreme positive potentials. Magnitudes of the double layer capacity in GsF solutions were above the corresponding values for NaF. Results indicate that the adsorption of Cs^+ by a mercury surface was specific. Whenever the anion was specifically absorbed, the cation adsorption caused additional adsorption of the anion, which lead to a shift in the zero charge point toward more negative potentials in going from NaI to CsI. The results obtained on the superequivalent adsorption of Cs^+ were confirmed by electrocapillary measurements.

Davtyan, O. K.
THEORY OF THE CASCADE FOR THE SEPARATION OF BINARY MIXTURES AND ISOTOPES. [1958] 18p. 2 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10870

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1957, v. 31, no. 2, p. 283-291.

The fundamental principle of rationality (or ideal condition) of the cascade for the separation of binary mixtures and isotopes is given. The theory of the ideal cascade for the separation of binary mixtures by all possible physical methods is derived on the basis of this principle. The relation between the effective and

the ideal enrichment factor is given. The general equation determining the number of cascade stages is derived for any value of the separation factor. The effect of the intrinsic diffusion on the circulating flow cycle is shown. The equation for the circulating flow, compensating diffusion transfer, is derived. The equation of flow of the ideal cascade is derived which is common for calculating the flow from a step with any value of the separation factor and any physical method of separation. For $\epsilon \ll 1$ the equation derived by K. Cohen (Nucleonics 2, 3, 1948) is a particular case of this equation. The theory developed is applicable to any value of the separation factor and to any method of separation of binary mixtures and isotopes.

Donnet, J[ean] B[aptiste] and Henrich, G[aston].
ON THE RADICAL CHARACTER OF CARBON BLACK. [1958] 5p. 10 refs.
Order from SLA mi$1.80, ph$1.80 59-10959

Trans. of Academie des Sciences, Paris. Comptes Rendus (France) 1958, v. 246, no. 23, p. 3230-32.

A chemical bond between a free radical and carbon black was verified by bringing together carbon black and free radicals comprising atoms which are readily determined chemically, such as nitrogen or chlorine, then determining the number of fixed radicals after a variable period of contact. In order to verify the fixing of these radicals with the carbon black, benzene solutions were prepared, containing 15% "azo-bis", and in which 10g of "Philblack 0" black were dispersed in 300 ml solution by vigorous agitation; these solutions were brought to 80°C with stirring. After extraction for 24 hr, the amount of nitrogen fixed with the black remained constant regardless of the duration or mode of extraction applied later. Four series of consecutive tests, in which the treatments with "azo-bis" followed by extraction in boiling benzene were repeated every time until a constant proportion of nitrogen was obtained, gave a perfectly reproducible proportion of nitrogen equal to 3.4 ± 0.2 mg of nitrogen per gram of treated carbon black. This result made it possible to calculate that 1g of Philblack 0 contains on the average $1.47 \cdot 10^{20}$ acceptor centers: there are, on the average, $1.83 \cdot 10^{18}$ acceptor centers per square meter of free surface. The existence of free radicals on the surface of carbon black which as a result becomes a veritable "free radical trap" explains the protection afforded by carbon black to polyethylene against degradation or photochemical oxidation, phenomena which no doubt take place through radical mechanisms as intermediaries.

Drakin, S. E. and Mal'tsev, A. K.
ELECTRO DIFFUSION IN ALLOYS OF POTASSIUM AND SODIUM. [1959] [13]p. (5 figs. and 2 tables omitted) 11 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15019

Trans. of [Zhurnal Fizicheskoy Khimii] (USSR) 1957, v. 31 [no. 9] p. 2036-[2041].

A new method for the investigation of electrodiffusion in metallic melts was developed, which permits the changes in concentration in the melt to be followed without interrupting the process and without using chemical analysis. The stationary distribution of components of molten potassium-sodium alloys in an electric field was investigated, the coefficients of electro diffusion were determined for alloys of different concentration, and the dependence of the coefficient of electrodiffusion on composition was determined. In alloys, which contain less than 48% sodium, the latter diffuses to the anode, at higher sodium concentrations the potassium goes to the anode. In the region of dilute solutions the coefficient of electrodiffusion strongly increases.

Duch, E. and Küchler, L.
DETERMINATION OF MOLECULAR WEIGHTS AT HIGHER TEMPERATURES (Molgewichtsbestimmungen bei Hoheren Temperaturen). [1958] [26]p. 38 refs. Tr57-152.
Order from SLA mi$2.70, ph$4.80 59-10580

Trans. of Zeitsch[rift] für Elektrochem[ie] (West Germany) 1956, v. 60 [no. 3] p. 218-229.

The difficulties of determining the molecular weights of macromolecular substances which are soluble only above about 100°C are discussed. An apparatus is described which permits the determination of molecular weight at temperatures up to 150°C by means of light scattering. Results of some measurements on polyethylene and polytrifluorochlorethylene are given.

Gierst, L. E.
DIFFERENTIATION OF THE VARIOUS ELECTRODE MECHANISMS BY MEASUREMENT OF THE TRANSITION TIME AT CONSTANT CURRENT IN UNSTIRRED SOLUTIONS (Unterscheidung der Verschienenen Elektrodenmechanismen durch Messung der Übergangszeit bei Konstantem Strom in Ruhender Lösung) tr. by A. S. McKie. July 58 [8]p. 17 refs. Library Trans. 755.
Order from SLA mi$1.80, ph$1.80 59-10081

Trans. of Zeitschrift für Elektrochemie (West Germany) 1955, v. 59 [no. 7/8] p. 784-787.

The general case is discussed in which electrolysis leads to depletion of the dissolved species A. The mechanisms considered are (1) reversible electrode, (2) retarded electron-transfer, (3) previous chemical reaction, (4) penetration of an adsorption layer, (5) local inhibition, and (6) electrostatic repulsion.

Goldstein, E.
EXCITATION OF THE PRINCIPAL SPECTRA OF AROMATIC COMPOUNDS BY MEANS OF ULTRAVIOLET LIGHT (Über die Hervorrufung der Hauptspektra Aromatischer Verbindungen druch Ultraviolettes Licht). [1958] 10p. [1 illus. omitted] 15 refs. Tr57-13.
Order from SLA mi$1.80, ph$1.80 59-10639

Trans. of Physikalische Zeitschrift (Germany) 1912, v. 13, [no. 13] p. 577-583.

Gol'mov, V. P.
HEATS OF COMBUSTION OF ALIPHATIC AND POLYMETHYLENE HYDROCARBONS IN CONNECTION WITH PECULIARITIES OF THEIR STRUCTURE [1958] 9p. 10 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10696

Trans. of Zhurnal Obshchey Khimii (USSR) 1941, v. 11, no. 5/6, p. 405-410.

Heats of combustion of the simplest aliphatic hydrocarbons were calculated with consideration of their structural peculiarities. The hydrogen atoms entering the different radicals are not equivalent thermochemically. The heats of combustion of the different hydrogen atoms conform to Markovnikov's rule and explain the increased reactivity of the hydrogen atoms entering the tertiary radicals. Examination of the heats of combustion of the simplest polymethylene hydrocarbons showed that the supply of energy in the rings caused by tension of the valence attains a maximum in three- and four-membered rings. Existence of a maximum of energy of tension in three- and four-membered rings conforms with the directions of isomeric conversions of the simplest rings in all the principal cases.

Gonikberg, M. G. and Kitaygorodskiy, A. I.
THE EFFECT OF PRESSURE ON THE RATE OF STERICALLY HINDERED REACTIONS. 12 Nov 58 [9]p. 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10633

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 122, no. 2, p. 231-234.

Harteck, Paul and Melkonian, G. A.
ON THE OCCURRENCE OF THE TUNNEL EFFECT IN ADSORPTION AND DESORPTION OF THE HYDROGEN-ISOTOPES. [1959] [4]p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-10876

Trans. of Die Naturwissenschaften (Germany) 1950, v. 37 [no. 16] p. 450.

Hautefeuille, P. and Perrey, A.
ON THE REPRODUCTION OF PHENACITE AND EMERALD. [1958] 5p.
Order from SLA mi$1.80, ph$1.80 59-10950

Trans. of Academie des Sciences [Paris]. Comptes Rendus, 1888, v. 106, p. 1800-1803.

Hayek, E.
THE EFFECT OF SURFACE REACTIONS ON THE FORMATION OF NATURAL AND SYNTHETIC CALCIUM PHOSPHATES. [1959] 4p.
Order from ATS $5.80 ATS-37L30G

Trans. of Z[eitschrift für] Naturforsch[ung] (West Germany) 1955, v. 10b, p. 420-421.

Iz'yurova, A. I.
ON THE RATE OF OXIDATION OF PETROLEUM PRODUCTS IN WATER WITHOUT THE ADDITION OF NITROGEN. [1959] 11p.
Order from LC or SLA mi$2.40, ph$3.30 59-15255

Trans. of [Gigiyena i Sanitariya (USSR) 1952, v. 17, no. 7, p. 12-17].

The process of biologically cleansing water, polluted with surface oil, was investigated when all the nutrients were present in the water and when only phosphorus and potassium were added. Machine oil was investigated at room temperature. Results showed that the bacterial oxidation of petroleum products in water in the presence of adequate quantities of phosphorus and potassium can proceed without supplementary nitrogen being introduced, apparently because the latter is fixed from the air. When nitrogen, phosphorus and potassium were added, under laboratory conditions, oxidation of petroleum products on the surface of the water took 1 to 2 months; when nitrogen was not added, the rate of oxidation was 4 times less. For slow rates of oxidation of petroleum products, i.e., when the latter are at the bottom of a reservoir, the rate of oxidation does not depend on the addition of nitrogen if phosphorus and potassium are present. An inadequate supply of phosphorus (30 times less than that necessary for the continuous process), lowers the rate of oxidation of petroleum products in water about 10 times if the other nutrient substances are present.

Kaganer, M. G.
METHOD OF ASSIGNMENT OF A SPECIFIC SURFACE ACCORDING TO THE ADSORPTION OF GASES IN A MONOMOLECULAR ZONE. [1958] 8p. 13 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10277

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1957, v. 116, no. 2, p. 251-254.

Kalinin, A. M. and Poray-Koshits, E. A.
ON THE QUESTION OF THE EXISTENCE OF METAKAOLINITE AND THE NATURE OF THE EXOTHERMAL EFFECTS OF ALUMINUM OXIDE. [1958] [9]p. 15 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10274

Trans. of Akad[emiya] Nauk [SSSR]. Doklady, 1957, v. 114, no. 2, p. 365-368.

Thermographic and X-ray-diffraction studies of hydragillite (an aluminum salt of nitric and sulfuric acid) were made to elucidate the nature of the thermal effects of aluminum oxide and to obtain sufficient experimental material for the solution of the problem of the existence of metakaolinite as a definite chemical compound.

Khudyakov, G. H.
ON THE TEMPERATURE FIELD OF A LIQUID BURNING FROM A FREE SURFACE, AND ON THE FLAME OVER IT. [1959] 18p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15131

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. Izvestiya, 1951, no. 7, p. 1015-1024.

Combustion characteristics are described for gasoline, kerosene, transformer oil, glycerin, amyl alcohol, butyl alcohol, methanol, acetone, etc.

Klochko, M. A. and Medvedeva, Z. S.
APPLICATION OF ELECTROCHEMICAL METHODS FOR THE PRODUCTION AND REFINING OF PLATINUM METALS (A REVIEW). [1958] 9p.
Order from LC or SLA mi$1.80, ph$1.80 59-10605

Trans. of Zhurnal Prikladnoy Khimii (USSR) 1942, v. 15, no. 1/2, p. 71-78.

Krasnov, K. S.
ISOTHERMS OF RATE OF SOLUTION OF APATITE IN SATURATED SOLUTIONS OF THE TERNARY SYSTEM $CaO-P_2O_5-H_2O$. [1959] 13p.
Order from ATS $17.50 ATS-36L30R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1955, v. 28, no. 12, p. 1275-1284.

Le Goff, Pierre
PROBLEM OF ENERGETIC ACCOM[M]ODATION OF MOLECULES IN HETEROGENEOUS GAS REACTIONS ON SOLIDS (Le Problems de l'Accommodation Energetique des Molecules, dans les Reactions Heterogenes de Gaz sur les Solids). [1959] [21]p. 24 refs. Tr57-98.
Order from SLA mi$2.70, ph$4.80 59-10554

Trans. of J[ournal] de Chim[ie] Phys[ique] (France) 1956, v. 53 [no. 4] p. 380-388.

When a molecule undergoes a series of consecutive impacts on the reactive surface, it accumulates the internal energy acquired at each impact; this phenomenon indluences the apparent reaction rate, either on a macroscopic scale according to the geometric form of the reactor used or on a microscopic scale according to the roughness of the catalyst surface. An interpretation is proposed for an "activation" process for platinum, described by various authors, which consists of heating the metal in the presence of oxygen. The rate of a heterogeneous chemical reaction can be defined by the yield of reactive impact b; b is the probability for each molecule to react in the course of each impact on the reactive surface S. In the general case, this probability depends on the temperature of the solid and the number of molecules adsorbed at its surface; this last magnitude depends, in turn, on the density of impacts of gas molecules on the surface, or, definitively, the gas pressure in the chamber. In the case of a reaction obeying an order n with respect to the pressure of the reacting gas, the impact yield b is $b = g^{n-1}h(T)$, where g is the density of impacts of molecules on the surface and h (T) is the temperature function which usually takes the exponential form $H(T) = H \exp(-E/RT)$, in which E is Arrhenius' activation energy and H a constant which we call "steric factor" by analogy with the practice in homogeneous kinetics.

Manvelyan, M. G., Krmoyan, T. V. and others.
ELECTRICAL CONDUCTIVITY OF CONCENTRATED SOLUTIONS OF SODIUM HYDROXIDE AND OF POTASSIUM HYDROXIDE, OF SODIUM AND POTASSIUM CARBONATES AND THE MIXTURES OF NaOH AND KOH AT 25°C. [1959] 11p. 14 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15087

Trans. of Akad[emiya] Nauk Armyan[skoy] SSR [Yerevan]. Izvest[iya]. Fiz[iko]-Mat[ematicheskiye] Yestestven[nyye] i Tekh[nicheskiye] Nauk[i] 1955, v. 8, no. 4, p. 73-78.

The electrical conductivities were investigated of various solutions of NaOH, KOH, Na_2CO_3, and K_2CO_3 up to the point of saturation at 25°C and of mixtures NaOH + KOH. The phenomenon of additivity of the electrical conductivity of the components can be expressed by the equation $\lambda^{o}_{NaOH} C_{NaOH} + \lambda^{o}_{KOH} C_{KOH} = \chi 1000$, where λ^{o} is the equivalent electrical conductivity of each component, calculated at the total concentration of the mixture.

Olsson, H[ugo].
THE DEPENDENCE OF THE VELOCITY OF ALKALINE HYDROLYSIS ON THE CONSTITUTION OF THE ALCOHOL. III. THE DEPENDENCE OF THE VELOCITY OF HYDROLYSIS ON THE TEMPERATURE. [1958] 4p. (11 tables omitted) 9 refs.
Order from SLA mi$1.80, ph$1.80 59-10671

Trans. of Zeitschrift für Physikalische Chemie (West Germany) 1925, v. 118, p. 107-113.

Kinetic work on the alkaline saponification of esters was performed, and the relation was determined between the absolute magnitude of the velocity constant and the temperature coefficient. Temperatures of 10.0°, 20.0°, 30.0°, 40.0°, 0.2° and 0.3° C. were used. The reaction constant showed no anomaly near the zero point with the use of iso-butyl acetate at 0.0° when the refrigerating bath was mixed with cooking salt. Confirmation of temperature coefficients to Arrhenius's temperature function was observed, in that they decreased with increasing temperature. Similar experiments of Trantz and Volkmann (Z. physik. Chem. 64: 53, 1908) were compared, and discrepancies were attributed to inaccuracies in their averages for the velocity constants, because of small time and concentration changes. Their averages did not cover all of their measurements, but only a small number. (See also 59-10673)

Osipov, K. A.
ON THE SELF-DIFFUSION ACTIVATION ENERGY IN LIQUID METALS [O Znacheniyakh Energii Aktivatsii Samodiffuzii v Zhidkikh Metallakh] [1958] 3p. 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3519

Trans. of A[kademiya] N[auk SSSR]. D[oklady] 1958, v. 121, p. 1019-[1020].

Evidence is presented which indicates that the method of viscosity in no case permits a proper determination of ΔH_{liquid}. For iron and iron-carbon alloys, the method of viscosity and the method of the radioactive

isotopes give equal values of ΔH_{liquid}. The experimental data are insufficient for the application of the equation $\Delta H_{liquid} = q - L$ for any metal. By comparing the equations $\Delta H = nq$ and $\Delta H_{liquid} = q - L$ the conclusion is drawn that the self-diffusion in liquid metals (differently from the self-diffusion in solid metals) is connected with an individual activation (and not with a group activation) of the atoms.

Paramonova, V. I.
THE APPLICATION OF ION EXCHANGE TO INVESTIGATION OF THE STATE OF A SUBSTANCE IN SOLUTION. II. EXPERIMENTAL PERFORMANCE OF THE METHOD OF ABSORPTION CURVES. [1959] 3p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3617

Trans. of Zhur[nal] Neorg[anicheskoy] Khim[ii] (USSR) 1958, v. 3 [no. 1] p. 212-214.

Two experimental procedures (static and dynamic) are given for the calculation of the method of absorption curves previously described (Zhur. Neorg. Khim. 2: 523, 1957).

Plauson, M.
CHEMICO-RAYS. [1958] 26p.
Order from SLA mi$2.70, ph$4.80 59-10674

Trans. of Chemiker-Zeitung (Germany) 1928, v. 56, no. 34, p. 337-344 and no. 36, p. 357-364.

The potentialities of radiochemistry are discussed.

Polak, L. S., Topchiyev, A. V., and Chernyak, M. Ya.
RADIOLYSIS OF HEPTANE AND OF SOME OTHER ALKANES. [1958] [9]p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3417

Trans. of [Akademiya Nauk SSSR. Doklady] 1958, v. 119, no. 2 [p. 307-310].

Poltorak, O. M.
ACTIVATION ENERGY OF HYDROGEN ION DISCHARGE AND THE THEORY OF A DELAYED DISCHARGE. [1959] 11p. 14 refs.
Order from CCT $36.75 CCT-491TT

Trans. of [Zhurnal Fizicheskoy Khimii] (USSR) 1954, v. 28, no. 10, p. 1845-1853.

See U.S. Atomic Energy Comm. Nuclear Sci. Abstr. 10-11289 for abstract of the original.

Reinäcker, G.
ELECTRON BOND IN SOLID CATALYSTS AND ITS RELATIONSHIP TO CATALYTIC PROPERTIES. [1958] [41]p. (bibliography omitted).
Order from SLA mi$3.30, ph$7.80 59-10747

Trans. of Acta Chimica (Hungary) 1958, v. 14, no. 1, p. 173-196.

Investions are reviewed and summarized (1) on metals and alloys (alloys with overstructure phases; alloys of Ni, Pd, or Pt with Cu, Ag, or Au; and alloys with Hume-Rothery phases), (2) on semiconductor oxides, and (3) on other oxide catalysts. A correlation is shown to exist between the nature of the electron bonds and the catalytic properties in the case of metallic catalysts (alloys) and in the case of oxides.

Samoylov, O. Y[a].
THE THEORY OF TEMPERATURE DEPENDENCE OF THE COORDINATION NUMBER OF IONS IN AQUEOUS SOLUTION [K Teorii Temperaturnoy Zavisimosti Koordinatsionnykh Chisel Ionov v Vodnykh Rastvorakh] [1958] 3p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3520

Trans. of A[kademiya] N[auk SSSR]. D[oklady] 1958, v. 121, p. 1043-[1044].

Coordination numbers are investigated for the region of diluted solutions. It is assumed that the immediate neighborhood of the selected particle contains only water molecules. The equation $n_i j_i = nj$ may serve as an equilibrium condition where n_i denotes the coordination number of the ion; j_i, the average (with respect to 1 sec) number of the activated jumps of the water molecules in the immediate neighborhood of the ion; n and j, the coordination number and the average (with respect to 1 sec) number of the activated jumps of the water molecules in water. An equation is given for the temperature dependence of the ratio n_i/n. If the temperature increases, the coordination numbers of the ions of negative hydration ($\Delta E < 0$) will increase, but the coordination numbers of the ions with positive hydration will decrease (with respect to the coordination numbers of the water molecules). If the temperature is increased, the water will be displaced to or from the ions (according to the sign of ΔE). The dependence of the temperature variations on the values of the potential barriers (which separate the neighboring positions of the equilibrium of the particles) is a general property of many liquid solutions. The dissociation of compounds in liquids at higher temperatures is a manifestation of this dependence. Results indicate that the dissociation in many cases can be reduced to the following: If the temperature increases, the particles of the liquid are displaced within a region with lower values of the potential barriers. The coordination numbers of the ions depend only slightly on temperature.

Soborovskiy, L. Z., Zinov'yev, Yu. M., and Englin, M. A.
FORMATION OF PHOSPHORUS-CARBON LINKAGE IN THE CONJUGATED REACTION OF HYDROCARBONS, PHOSPHORUS TRICHLORIDE AND OXYGEN (Obrazovaniye Fosfor-uglerodnoy Svyazy v Soprazhennoy Reaktsii Uglevodorodov, Trekhkhloristogo Fosfora i Kisleroda). [1958] 5p. 3 refs. Tr57-32.
Order from LC or SLA mi$1.80, ph$1.80 59-10558

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1949, v. 67 [no. 2] p. 293-295.

Results are described of a study of interaction of phosphorus trichloride with paraffins, cycloparaffins, olefins, and some of their derivatives.

Sumarokova, T. N. and Arsenov, G. I.
A METHOD FOR CRYOSCOPIC MEASUREMENTS. [1959] 3p.
Order from ATS $4.55 ATS-05L31R

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 5, p. 1153-1154.

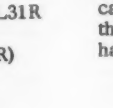
Surmin, P. P.
CONDITIONS INFLUENCING CONDENSATION OF ACETONE MOLECULES. [1958] 6p. 17 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10783

Trans. of Zhurnal Obshchey Khimii (USSR) 1935, v. 5, no. 12, p. 1639-1641.

An investigation is described of the conditions of acetone condensation obtaining the greatest yields of various products. Only mesityl oxide was isolated and studied. The attempts to isolate the individual matters from the higher-boiling fractions have failed. Results indicated that the most energetic process of acetone condensation takes place in alkaline media. In neutral media (with the salts) and in acid media the process slows down considerably. The most active of alkali reagents are dry alkalies and alcoholic solutions of alkalies. The yields of the condensation products decrease considerably with the action of aqueous solutions. Alcoholates are fairly energetic agents, with sodium ethylate excelling isoamylate in its action. Calcium carbide proved to be an extremely active and highly original condensing agent, thus becoming a universal catalyst for obtaining the most diverse products of acetone condensation. Aluminium chloride must be considered a relatively weak agent, so far as its effect on the processes of acetone condensation is concerned.

Travagli, G.
MECHANISMS OF HYDRATION OF NITRILES AND UREA CATALYZED BY MERCURY SALTS (Meccanismi delle Idratazioni dei Nitrili e della Urea Catalizzate dai Sali Mercurici). [1958] 15p. 29 refs.
Order from SLA mi$2.40, ph$3.30 59-10522

Trans. of Gazzetta Chimica Italiana 1957, v. 87, no. 6, p. 673-681.

Results are reported which were obtained in studying the effect of various acids on the hydrolysis of nitriles, urea and derivatives, urethans and cyanamides, in the presence and absence of mercury salts. These hydrations are considerably accelerated by mercury salts, and the catalytic effect decreases with the following order of acids: sulfuric acid, perchloric acid, selenic acid, chromic acid, nitric acid. With hydrochloric acid, hydrobromic acid, etc., the effect disappears completely. A kinetic study of the hydrolysis of urea and acetonitrile revealed that in each case the two reactions follow the laws of a reaction of first order, and that with the involvement of one mercury atom the catalytic effect is accompanied by a distinct reduction in the activation energy (and of the action constant), presumably without substantial modification of the mechanism of the non-catalyzed reaction. Mercury salts produce a barely noticeable acceleration in the hydrolysis of amides, oximes and sym-dimethyl urea. From the analogous catalytic effect of mercury salts on urea and nitriles, an effect that varies with the acid used, however, the hypothesis can be postulated that the catalytic effect occurs through the formation of an intermediate compound having the general structure 

Zarinskiy, V. A. and Mandel'berg, I. R.
HIGH-FREQUENCY CIRCUIT FOR STUDIES IN PHYSICAL CHEMISTRY AND ITS APPLICATION [1959] 10p. 6 refs. T-2897.
Order from LC or SLA mi$1.80, ph$1.80 59-15030

Trans. of *Zavodskaya Laboratoriya (USSR) 1958, v. 24, no. 2, p. 148-153.

A high-frequency circuit was devised which permits (1) determination of the concentration of compounds in aqueous and nonaqueous binary solutions, (2) titration, and (3) other investigations in physical chemistry. The instrument consists of one 5-megacycle oscillator stabilized by a rectifier, differential detector with a microammeter as the indicator, and two resonant circuits of which one is a measuring circuit and the other is a comparison circuit.

EARTH SCIENCES

*AKADEMIYA NAUK SSSR. IZVESTIYA. SERIYA GEOFIZICHESKAYA, 1958, NO. 10, P. 1153-1264. (News of the Academy of Sciences of the USSR. Geophysics Series). [1959] 1v. SOV-49-58-10-(1-15)/15.
Order from OTS $0.80, $4.50/6 mo. PB 141 042T-8
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

Bonchkovskiy, V. F. and Namsaray, S.
THE ACCURACY OF INCLINOMETER READINGS (O Tochnosti Pokazaniy Naklonomerov). [1958] 22p. F-TS-9307/V.
Order from LC or SLA mi$2.70, ph$4.80 59-14149

Trans. of Akademiya Nauk SSSR. Geofizicheskiy Institut. Trudy [1954] no. 22(149) p. 3-18.

The degree of operational accuracy of inclinometers makes possible the reliable measurement of inclinations with an accuracy of 0.10". The discrepancies in the readings of two adjacent parallel inclinometers indicate a difference in the inclinations of the places of their installation. According to measurements under natural conditions, two points located side by side may have very different inclinations. It was found that the method of the pendulum by the filament (conical pins or

flat clamps) has no effect on the inclinometer reading. The suspension of the pendulum from a new filament does not require an extended time for the pendulum to operate under normal conditions. If deformations of the bearings and setting screws occur, a practically instantaneous variation in the position of equilibrium of the pendulum is produced, but the accuracy of its reading is not disturbed. Further studies of inclinometers involves their installation to provide accurate readings corresponding to the inclinations of a large area.

Rymsha, V. A.
AN INSTRUMENT FOR MEASURING THE LOW VELOCITIES OF A WATER CURRENT [Pribor dlya Izmereniya Malykh Skorostey Techeniya Vody].
17 Mar 59, 5p. (1 fig. omitted) 1 ref. JPRS: L-687-N.
Order from OTS $0.50 59-13286

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 9, p. 44-46.

The proposed design constitutes an improved thermic speed indicator, which is free of many of the shortcomings encountered in previous devices. Given a temperature difference $T_0 - \theta = 1^\circ$ and a time $\tau = 1$, the heat consumption $Q = f_3(\alpha)$. When α is determined by the flow velocity W, $Q = f_5$ (W). On the other hand, when the element (a porcelain cylinder 30-mm long, 6-mm diam) is heated by an electric current induced in a coil, the interdependence between the heat consumption value Q and the value of the electric current ($Q = 0,24\varepsilon I$) I and the flow velocity W can be plotted as $I = f_6(W)$. The intensity of the current induced in the heating coil is controlled by a rheostat and checked by a millimmeter. The temperature gradient, registered by a thermoelement, is determined from galvanometer readings. The device was tested and tared; it showed maximum sensitivity with velocities of 0,0 and 0,1 m/sec. The temperature gradient depends both on the flow velocity W and on the intensity of the electric current I.

Shushakov, S. D.
MULTIPLE REFLECTIONS. [1959] 18p.
Order from ATS $21.10] ATS-72L29R

Trans. of Priklad[naya] Geofiz]ika] (USSR) 1958, no. 20, p. 3-25.

Climatology and Meteorology

Akimov, M. N.
CHANGING THE PRESSURE COMB OF A RADIOSONDE TO EXTEND ITS RANGE. 24 Nov 58, 2p. 1 ref. JPRS(NY)-L-463.
Order from OTS $0.50 59-11111

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 2, p. 46.

As a radiosonde rises, the calculated heights are of increasing intervals and the maximum heights cannot be calculated readily. At the higher ascents, there are corresponding layers which, in the last heights, will be calculated by extrapolation of the velocity curve. Because it is forbidden in the USSR to extrapolate the height for a layer more than 1.5 to 2 km, data for the highest layers is excluded from processing to some degree, and ascents are sometimes reduced by 4 to 6 km. This can be corrected by simple modifications of the existing sonde to increase its range. The pressure comb should be extended by 1/3 its length and the number of teeth increased. These should be distributed so there is not more than 3 km difference between the heights of each tooth. The lever drive of the pressure indicator should be increased, and the panel extended to accommodate the humidity comb.

Deryagin, B. V. and Todes, O. M.
A THEORY OF THE MOVEMENT OF DROPLETS IN AN ANABATIC CURRENT OF AIR SUBSATURATED OR SUPERSATURATED WITH VAPOR AND ITS POSSIBLE METEOROLOGICAL APPLICATIONS.
[1958] [6]p. [1 fig. omitted] 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10787

Trans. of [Akademiya Nauk SSSR. Doklady] 1948, v. 62, no. 1, p. 93-96.

Gubin, V. I.
FORECASTING GEOPOTENTIAL HEIGHTS OF ISOBARIC SURFACES. 22 Jan 59, 6p. (2 figs. omitted) JPRS: L-505-N.
Order from OTS $0.50 59-13080

Trans. of unidentified Russian language document.

Vul'fson, N. I. and Levin, L. M.
INTERDEPARTMENTAL CONFERENCE ON PROBLEMS OF THE INVESTIGATION OF CLOUDS, PRECIPITATION, AND ATMOSPHERIC-ELECTRICITY (NO. 5). [1959] 17p.
Order from LC or SLA mi$2.40, ph$3.30 59-15450

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1956, no. 6, p. 735-739.

Geodesy

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. GEODEZIYA I AEROFOTOS"YEMKA (USSR) 1958, NO. 3, P. 3-164 (News of Institutes of Higher Learning, Geodesy and Aerial Photography). [1959] 1v. SOV-154-58-3-(1-24)/24.
Order from OTS $0.70, $4.00/year PB 141 007T-3
Foreign $0.95, $5.50/year

Consists of abstracts in English.

Zakatov, P. S.
ON DEVIATIONS IN PLUMB LINES (Ob Ukloneniyakh Otvesnykh Liniy). [1959] 56p.
F-TS-9561/V.
Order from LC or SLA mi$3.60, ph$9.30 59-14154

Trans. of mono. Kurs Vyshey Geodezii, 2nd ed, 1953, chap. 8, p. 185-211.

Topics discussed include (1) Effects of the deviation of plumb lines on the astronomical latitudes and longitudes of points and azimuths of directions, and on measurable horizontal directions and zenith distances, (2) study of the figure of the geoid on the basis of astronomical and geodesic data, (3) computing the deviations of plumb lines caused by the effect of topographical relief.

Geography

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 3, 5 JUNE 58]. [1958] [11]p. 15 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14031

Trans. of unevaluated information selected from foreign-language publications.

The chief articles in this publication deal with ice reconnaissance in the Arctic, and with construction in the permafrost zone.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 4, 4 AUG 58]. [1958] [8]p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-14032

Trans. of unevaluated information selected from foreign-language publications.

The chief article in this publication deals with conditions in the Yakutskaya ASSR, the permafrost region which comprises one seventh of the entire territory of the USSR.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 5, 30 SEP 58]. [1958] [11]p. 10 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14039

Trans. of unevaluated information selected from foreign-language publications.

The chief article in this publication deals with aerial ice reconnaissance in the Arctic.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 6, 5 DEC 58]. [1958] [21]p. 22 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-14042

Trans. of unevaluated information selected from foreign-language publications.

The chief articles in this publication deal with economic developments in the Yakutskaya ASSR, and with the port of Igarka, which is located in the permafrost zone.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 7, 8 JAN 59]. [1959] [9]p. 13 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14045

Trans. of unevaluated information selected from foreign-language publications.

This publication consists of press releases relating to a flight to the Soviet Arctic in which Soviet, Chinese, Polish, Czech, Rumanian, Hungarian, Geramn, Italian, French and Swedish journalists participated.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 8, 10 FEB 59]. [1959] [9]p. 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14046

Trans. of unevaluated information selected from foreign-language publications.

This publication contains press releases by French, Hungarian and Italian journalists relating to a flight to the Soviet Arctic in which they participated.

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 9, 2 APR 59]. [1959] [13]p. 21 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14733

Trans. of unevaluated information selected from foreign language publications.

Geology

Abdulin, A. A.
ABOUT THE NEW ORE MANIFESTATION OF COPPER IN THE AULA OAAK REGION. 26 Nov 58, 1p. JPRS/DC-L-1156.
Order from OTS $0.50 59-11333

Trans. of A[kademiya] N[auk] Ka[zakhskoy] SSR, Alma Ata. Izvestiya. Seriya Geologicheskaya, 1958, v. 30, no. 1, p. 38-41.

The most auspicious type of copper mineralization in the north-eastern part of Central Kayakhstan is the copper-porphyrite type of ores. A newly uncovered ore manifestations of that type, found 2 km north of Odak copper-tourmaline occurrence, deserves therefore great attention. The ore bodies are represented by intensively shattered syenite-porphyries, considerably sericitized and chloritivized. Spatially they are adapted to the northern part of the western massif of syenite-porphyries, and consist of two individual bodies. The northern ore body, with a lens-like

shape, stretches in n. e. direction, 60°. Its length is about 60 m, the maximum width -- 10m (in the central part). From copper sulfides, there occurs a thin chalco pyrite dissemination, and bornite -- in the veinlets. Lump assaying from the surface showed a copper content from .3 to 1.%; in individual points -- from 6 to 13%. The southern ore body, of a lens-shape also, is about 50 m long, with an average width of 1.5-2.5 m. A lump assaying carried out along the whole surface showed a copper content from hundredths (.01-.02 and .05) to tenths parts of a percent. The points of increased copper content, are followed, as a rule, by an increased content of lead (from .01 to .22%). Cadmium and zinc have been uncovered in some samples. No analyses were made for detecting other minerals. (Translation reprinted here in its entirety.)

Baud, L.
MANGANESE PROSPECTS AND DEPOSITS IN FRENCH EQUATORIAL AFRICA. 15 Apr 58 [25]p. 18 refs.
Order from SLA mi$2.70, ph$4.80 59-10483

Trans. of International Geological Congress (no. 20) [Mexico, 1956]. Manganese Symposium, v. 2, p. 9-38.

Belousov, V. V.
TECTONOPHYSICS: A PROMISING NEW ORIENTATION IN GEOLOGY. [1959] 9p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-15264

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1958, v. 28, no. 9, p. 3-10.

Tectonophysics is defined as the study, by simultaneous use of geological and physical methods, of the mechanism of tectonic deformations developing in the earth's crust.

Bouladon, J. and Jouravsky, G.
THE MANGANESE DEPOSITS OF MOROCCO. 15 May 58 [25]p. 38 refs.
Order from SLA mi$2.70, ph$4.80 59-10480

Trans. of International Geological Congress (no. 20) [Mexico, 1956]. Manganese Symposium, v. 2, p. 217-248.

In 1955 Morocco produced about 370,000 tons of metallurgical ore (containing 37 to 55% Mn) and 40,000 tons of chemical grade ore (containing 80 to 90% MnO_2). Three-fifths of this tonnage is derived from the Imini deposit which is a bedded deposit in the Middle Cretaceous; the remainder of the production is derived from Liassic deposits (Bou Arfa) and those belonging to the Precambrian III (lower part of the Infracambrian) i.e., Tiouine, Idikel, and veins in the Ouarzazate area. The deposits of the Precambrian III belong to two types: (1) veins (Ouarzazate veins) in volcanic formations which yield ore of good quality (50 to 55% Mn), although they are irregular shape and discontinuous; and (2) stratified deposits (Tiouine and Idikel) which occur as multiple lenticular beds, interstratified in continental formations of probably coastal origin that accompany older volcanic formations. The latter yield a less rich ore (40 to 45% Mn) than the vein-type deposits. All these deposits are genetically related to the Precambrian III. The essential constituents of the ore are braunite, minerals of the hollandite-ebelmenite (cryptomelane)-coronadite series, and hausmannite. The usual gangue minerals are barite, quartz, and locally, dolomite.

Bykova, E. V.
CHITINOID FORAMINIFERA IN THE ORDOVICIAN DEPOSITS OF NORTH KAZAKHSTAN. [1959] 5p.
Order from ATS $6.40 ATS-71L30R

Trans. of *Akad[emiya] Nauk SSSR. Doklady, 1958, v. 120, no. 4, p. 879-881.

Grigoryev, I. F.
GENESIS OF TIN AND TIN-TUNGSTEN DEPOSITS OF THE TRANSBAYKAL. 24 Apr 59, 23p. (2 figs. omitted) 18 refs. JPRS: L-1636-D.
Order from OTS $0.75 59-11530

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Geologicheskaya, 1957 [v. 22] no. 8, p. 16-30.

The origins of various types of tin ore locations in Transbaykal are discussed. Geochemical proofs are presented concerning the various ways of tin transfer and the conditions of cassiterite deposit formations; also proved, in several cases, is the alkaline character of ore forming solutions.

Krilov, A. Ya., Baranovskaya, N. V. and others.
AGE OF VARIOUS INTRUSIONS OF THE TERSKEI-ALATAI. RANGE AND THE SIGNIFICANCE OF GEOCHEMICAL PROCESSES IN AGE DETERMINATION BY THE ARGON METHOD. [1958] [10]p. 4 refs. GSC Trans. no. 7.
Order from LC or SLA mi$1.80, ph$1.80 59-10532

Trans. from Session [no. 4] of the Commission on the Determination of Absolute Age of Geological Formations of the USSR Academy of Sciences, 12-14 May 55. Transactions.

Odintsov, M. M.
BASIC FEATURES OF THE GEOLOGY OF THE SIBERIAN DIAMOND-BEARING PROVINCE. 26 Nov 58, 9p. JPRS/DC-L-1149.
Order from OTS $0.50 59-11322

Trans. of A[kademiya] N[auk] SSSR. Izvestiya Vostochnykh Filialov, 1957, no. 1, p. 27-33.

Pavlov, N. V.
QUESTIONS OF THE GENESIS OF THE ENDOGENIC MAGNETITE ORES IN THE TUNGUSKA SYNCLINE OF THE SIBERIAN PLATFORM, tr. by J. H. Bradley. [1958] 15p. (8 figs. omitted) 18 refs. GSC Unedited Trans. no. 8.
Order from LC or SLA mi$2.40, ph$3.30 59-10518

Trans. of *Akademiya Nauk SSSR. Izvestiya. Ser[iya] Geol[ogicheskaya] 1958, no. 9, p. 3-24.

Polyakova, Ye. A.
SESSION OF THE SCIENTIFIC COUNCIL OF THE MAIN GEOPHYSICAL OBSERVATORY IMENI VOYEYKOV ON RESULTS OF 1957 WORK. 24 Feb 24 Feb 59, 4p. JPRS: L-653-N.
Order from OTS $0.50 59-13218

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 6, p. 64-65.

Poskotin, D. L.
GEOCHEMICAL PROSPECTING FOR ORE DEPOSITS. 9 Mar 59, 5p. JPRS: L-683-N.
Order from OTS $0.50 59-13283

Trans. of Razvedka i Okhrana Nedr (USSR) 1958 [v. 24] no. 9, p. 55-56.

A review is presented of a book consisting of a collection of reports read at the All-Union Conference on Geochemical Methods of Prospecting for Ore Deposits, convened in March 1956 in Moscow.

Servant, J.
PROSPECTS AND DEPOSITS OF MANGANESE IN FRENCH WEST AFRICA (Manganèse, de l'Afrique Occidentale Française). [1958] [24]p. 39 refs.
Order from SLA mi$2.70, ph$4.80 59-10450

Trans. of International Geological Congress (no. 20) [Mexico, 1956]. Manganese Symposium, v. 2, p. 89-114.

Shcherbakov, D. I.
GEOLOGICAL SCIENCE AND THE XXI CONGRESS OF THE CPSU. 13 Mar 59, 8p. JPRS L-1541-D.
Order from OTS $0.50 59-11459

Trans. of Akademiya Nauk SSSR. Izvestiya, Seriya Geologicheskaya, 1959 [v. 24] no. 1, p. 3-8.

Shcherbakov, D. I.
IMMEDIATE PROBLEMS OF THE DETERMINATION OF THE ABSOLUTE AGE OF CENTRAL ASIAN INTRUSIONS. [1958] 6p. GSC Trans. no. 3.
Order from LC or SLA mi$1.80, ph$1.80 59-10530

Trans. from Session of the Commission on the Determination of the Absolute Age of Geological Formations (no. 4) [held at] USSR Academy of Sciences [12-14 May 55. Transactions].

Starik, I. E.
MATERIALS FOR THE SOVIET GEOLOGICAL TIME SCALE. [1958] 3p.
Order from ATS $5.20 ATS-44L29R

Trans. of [Akademiya Nauk SSSR. Komissiya po Opredeleniyu Absolyut[nogo] Vozrasta Geol[ogicheskikh] Formatsii. Byull[eten'] 1957, no. 2, p. 5-7.

Vincienne, Henri.
GEOLOGICAL OBSERVATIONS ON SEVERAL SYNGENETIC MOROCCAN MANGANESE DEPOSITS. 30 June 58 [20]p.
Order from SLA mi$2.40, ph$3.30 59-10484

Trans. of International Geological Congress (no. 20) [Mexico, 1956]. Manganese Symposium, v. 2, p. 249-268.

The author describes briefly the Moroccan manganese deposits which he has had the occasion to examine since 1948 and he gives his opinion on their genesis. The descriptions successively cover the following deposits: Tasdremt, Imini, Tiouine, Bou Arfa, and Glib en Nam. All of these deposits appear to be sedimentary and syngenetic. But the origin of the deposited manganese must be sought in one case in material derived from volcanic magmas and brought in by hydrothermal means (Tiouine), in another case by exhalations (Glib en Nam, with a paragenesis containing manganiferous silicates), and in yet another case, in the alteration products of continental areas that were eroded for long periods and then washed off by marine transgressions during the Liassic (Bou Arfa) or the Mesocretaceous (Tasdremt, Imini) periods.

Zashkil'nyak, M. M.
THE CHEMICAL COMPOSITION OF CARPATHIAN SHALES. [1959] 4p.
Order from ATS $5.80 ATS-53L30R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 11, p. 33-35.

Zhelonkin, A. I. and Nikolayev, I. P.
BASIC PHYSICAL PROPERTIES OF FORMATION OIL AND WATER, AND THEIR CHANGES THROUGHOUT THE D_1-BED OF THE TUIMAZY OIL FIELD. [1959] 4p.
Order from ATS $7.15 ATS-74L29R

Trans. of Neftyanoye Khoz[yaystvo] (USSR) 1958, v. 36, no. 3, p. 42-45.

Zkhus, I. D.
THE ROLE OF CLAY MINERALS IN THE PROCESS OF OIL FORMATION. [1958] 5p.
Order from ATS $8.95 ATS-16L30R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 123, no. 2, p. 353-356.

Mineralogy

Borovik, S. A.
DETERMINATION OF SULFUR, SELENIUM AND HALIDE ELEMENTS IN ORES AND MINERALS BY SPECTRUM ANALYSIS METHOD OF SPECTRUM ANALYSIS OF SOLUTIONS, tr. by M. D. Friedman. 27 Aug 58 [6]p. 2 refs. T-127.
Order from LC or SLA mi$1.80, ph$1.80 59-10541

Trans. of A[kademiya] N[auk] SSSR. Izv[estiya]. Ser[iya Fizicheskaya] 1950, v. 14, no. 5, 630-633.

An analytical procedure is described for the quantitative spectroscopic determination of S, Sc, and halogens in ores and minerals without converting samples into solutions. The material to be analyzed is finely pulverized and deposited as a uniform strip on the surface of a Cu plate moistened by 0.1 ml of a dilute colloid. The plate, dried at 120°C, is clamped into a De Gramont holder as the lower electrode, the upper electrode being a bulk Cu rod ground to a truncated cone. Relative line intensities obtained by this method were compared with those observed in a Geissler tube discharge. Data tabulated for S, Se, F, Cl, Br, and I indicated that the intensities obtained by the 2 techniques are similar. By using the spectrogram background for comparison, determinations were conducted with errors of 6 to 8%. The average concentration sensitivity observed was 0.05%. A similar method of introducing samples into the arc flame appears to be suitable for the analysis of other elements. A small amount of solution of the sample to be tested (0.1 to 1 ml) is evaporated to dryness on a Cu strip. The latter is then used as the upper electrode as before. Experiments were carried out with solutions of a number of Mu, V. Ag, Be, Al, Zr, B, Pb, Ni. The tabulated results showed a mean error of 6 to 8% in the analysis.

Karzhavina, N. A. and Keneman, F. E.
A STUDY OF THE THERMAL DECOMPOSITION OF POWDERED SHALE DURING THE PROCESS OF ITS RAPID HEATING. [1959] 4p.
Order from ATS $7.35 ATS-51L30R

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izvest[iya] 1958, no. 11, p. 118-120.

Logvinenko, N. V. and Shumenko, S. I.
STUDY OF CLASTIC QUARTZ. [1959] 7p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15114

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 110, p. 646-650.

Romain, Pierre [Merland, Rene, and Mesnard, Pierre].
POTASSIUM BOROHYDRIDE: ITS USE BY A DRY METHOD IN THE QUALITATIVE ANALYSIS OF MINERALS. [1959] 13p. 12 refs. Pa-12U5.
Order from SLA mi$2.40, ph$3.30 59-15092

Trans. of Société Chim[ique] de France. Bulletin [1954, p. 1298-1304].

Data are presented which indicate that the use of potassium borohydride by a dry method permits numerous inorganic ions to pass to a lower state of oxidation. Its reducing power and easy handling in the air, under almost totally safe conditions, makes it a valuable reagent. It is an active reducing agent, permitting the ionization of minerals, insoluble in nitric acid and aqua regia; in the analysis of a solid substance, it avoids the use of these two reactive acids, as well as various fusions, necessitated by the nature of the residue, not solubilized by aqua regia. It may serve as the basis for a systematic analysis. It may also be used to advantage in the analysis of an acid solution, containing the elements of the phosphoric series. One operation only is sufficient for the elimination of the interfering anions.

Oceanography

Gordiyenko, P. A.
ARCTIC SEA ICE RESEARCH. INTERNATIONAL CONFERENCE IN WASHINGTON (Issledovaniya Morskikh Arkticheskikh l'Dov. Mezhdunarodnaya Konferentsiya v Vashingtone) tr. by Judith I. B. Danner. Feb 59 [9]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15281

Trans. of Priroda (USSR) 1958 [v. 47] no. 9, p. 68-71.

Marchandise, H.
CONTRIBUTION TO THE STUDY OF SEDIMENTARY MANGANESE DEPOSITS. [1958] 8p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-10481

Trans. of International Geological Congress (no. 20) Mexico [1956]. Manganese Symposium, v. 1, p. 107-118.

Reasons for the presence of iron-free Mn deposits in ocean sediments are discussed.

Physics of the Atmosphere

Al'pert, Ya. L.
STATE OF THE OUTER ATMOSPHERE. [1958] 3p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10538

Trans. of unidentified Russian article.

Observations made from radio signals of the first artificial satellite are compared with results of outer ionosphere studies made with high-altitude sounding rockets and with signals reflected from the moon.

Al'pert, Ya. L. and Aynberg, A. A.
ON THE STATISTICAL NATURE OF THE IONOSPHERE. 19 Aug 58 [20]p. T-123.
Order from LC or SLA mi$2.40, ph$3.30 59-10505

Trans. of Z[hurnal] E[ksperimental'noy i] T[eoreticheskoy] F[iziki] (USSR) 1951, v. 21, no. 8, p. 389-400.

The electromagnetic field of a single signal reflected from the ionosphere is considered as the resultant of

the superposition of a regular signal and a large number of "elementary" signals scattered by inhomogeneities in the ionosphere, the motion and changes of which have a chaotic character. Formulas are inferred for β^2 (the ratio of the energy of the regular signal to the energy of the elementary signals), and v_o (the root mean square velocity of these motions and changes which characterize the degree of inhomogeneity of the reflecting layer). Results of experiments are given which show that reflection from the F_2 layer almost always has a statistical character, with β^2 ranging from $\beta^2 \sim 0$ to $\beta^2 \sim 50$, and v_o within the limits 0.5 to 15 m/sec. The magnitudes of β^2 and v_o change during the course of a day.

Fedorov, Ye. K.
INVESTIGATION OF THE UPPER LAYERS OF THE ATMOSPHERE BY MEANS OF ROCKETS AND ARTIFICIAL SATELLITES (Issledovaniya Verkhnikh Sloyev Atmosfery pri Pomoshchi Raket i Iskusstvennykh Sputnikov Zemli). [1959] [21]p. F-TS-9343/V.
Order from LC or SLA mi$2.70, ph$4.80 59-16069

Trans. of Priroda (USSR) 1957 [v. 46] no. 6, p. 3-12.

Soundings are described in laymen's terms.

Kogan-Beletskiy, G. I.
ON THE QUESTION OF DETERMINING THE BOUNDRIES (POSITION) OF THE TROPOPAUSE (K Voprosu Opredeleniva Granits Tropopauzy) tr. by Marcel I. Weinreich. [1958] [12]p. 8 refs. (foreign text included). SCL-T-207.
Order from LC or SLA mi$2.40, ph$3.30 59-10562

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 12, p. 36-39.

A method of boundary determination based on the formation of stable condensation vapor trails from turbojets is proposed.

Milin, V. B.
ABOUT THE ANOMALOUS ELECTRIC FIELDS IN THE ATMOSPHERE (Ob Anomal'nykh Elektricheskikh Polyakh v Atmosfere). [1959] [7]p. 3 refs. F-TS-9880/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16080

Trans. of Akademiya Nauk SSSR. Doklady, 1954, v. 95, no. 5, p. 983-986.

A formula is developed for the determination of a potential gradient in a surface layer of the atmosphere if the potential gradients at two altitudes are known.

Seismology

Berzon, I. S.
DEVELOPMENT OF SEISMIC EXPLORATION METHODS IN THE SOVIET UNION. [1959] 17p.
Order from LC or SLA mi$2.40, ph$3.30 59-15122

Trans of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1957, no. 11, p. 1347-1358.

Seismic exploration methods are extensively used in the USSR for regional investigations, in prospecting for useful minerals, and in geological-engineering surveys. In the postwar years seismic method of exploration were developed in the following basic directions: Expansion of the frequency range of seismic waves. Utilization of the dynamic characteristics of seismic waves (amplitudes, trace of registration, frequency spectra, character of polarization of the waves). Utilization of various non-longitudinal waves for exploration. In the present article the results of research work on the development of seismic methods of exploration in the USSR, especially in the last 10 years, are briefly reviewed.

Malinovskaya, L. N.
ON THE DYNAMIC PECULIARITIES OF LONGITUDINAL REFLECTED WAVES BEYOND THE CRITICAL ANGLES. [1959] 7p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-15262

Trans. of *Akad[emiya] Nauk SSSR. Izv[estiya]. Ser[iya] Geofiz[icheskaya] 1957, no. 5, p. 569-574.

Theoretic seismograms of reflected longitudinal waves (also for angles greater than the critical) for trilayer and four layer media are given and analyzed.

Malinovskaya, L. N.
ON THE DYNAMIC PECULIARITIES OF TRANSVERSAL WAVES AT A COMPLETE INTERNAL REFLECTION. [1958] 13p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10877

Trans. of *Akad[emiya] Nauk SSSR. Izv[estiya]. [Seriya Geofizicheskaya] 1958, no. 2, p. 184-195.

The influence of the free surface on the form, the polarization and the relation of components of displacement in a transversal wave (a direct or one which had on its way a series of reflections and of diffractions) is considered. The influence of a superficial layer with a low velocity on the transversal waves, falling on the bottom of the layer at an angle greater than the critical, is calculated.

Petrashen', G. I. and Enalskiy, V. A.
ON SOME INTERFERENCE PHENOMENA IN MEDIA CONTAINING THIN PLANE PARALLEL LAYERS. I. [1958] 16p. 2 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10878

Trans. of Akad[emiya] Nauk SSSR. Izvestiya. Seriya Geofiz[icheskaya] 1956, no. 9, p. 1009-1020.

Problems on the propagation of transversal waves of the type SH in two- and in three-layer media with plane parallel boundaries of separation, containing a thin layer, are examined. Precise formulas for fields of waves are produced and the directions of investigations aiming for the production of physical consequences are discussed.

ENGINEERING

RAZVEDKA I OKHRANA NEDR (USSR), 1959, NO. 1, P. 1-64 (Exploration and Conservation of Natural Resources). [1959] [13]p. SOV-132-59-1-(1-18)/18.
Order from OTS $0.50, $3.00/6 mo. PB 141 135T-11
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

TEKHNIKA MOLODEZHI (USSR) 1958, V. [26] NO. 10, P. 1-40 (Engineering for Youth). [1959] 1v. SOV-29-58-10-(1-28)/28.
Order from OTS $0.50, $6.00/year PB 141 024T-8

Consists of abstracts in English.

TEKHNIKA MOLODEZHI (USSR) 1958, V. [26] NO. 11, P. 1-40 (Engineering for Youth). [1959] 1v. SOV-29-58-11-(1-28)/28.
Order from OTS $0.50, $6.00/year PB 141 024-9

Consists of abstracts in English.

TSEMENT (USSR) 1958, NO. 6, P. 1-39 (Cement). [1959] [14]p. SOV-101-58-6-(1-13)/13.
Order from OTS $0.50, $3.00/year PB 141 094T-5
Foreign $0.75, $4.50/year

Consists of abstracts in English.

Bocharov, V. L. and Malkin, L. M.
LABOR PRODUCTIVITY IN NON-FERROUS METALLURGY. 22 Apr 59, 21p. JPRS: L-734-N.
Order from OTS $0.75 59-13420

Trans. of Gornyy Zhurnal (USSR) 1959, no. 12, p. 15-17, 18-23.

Contents:
Reserves of labor productivity in the Ural copper mines, by V. L. Bocharov
The growth of labor productivity at the mines of the Leninogorsk Combine, by L. M. Malkin

Kulish, E. D. and Solomonov, A. E.
EXPERIENCE WITH THE DRILLING OF HORIZONTAL-LINKAGE BOREHOLES FROM AN INCLINED BOREHOLE AT THE SUB-MOSCOW STATION "PODZEMGAZ". [1959] [13]p.
Order from LC or SLA mi$2.40, ph$3.30 59-15134

Trans. of Podz[emnaya] Gaz[ifakatsiya] Ugley (USSR) 1957, no. 1, p. 46-51.

Mizernitskiy, L. A. and Tyuryakov, A. F.
OPEN PIT MINING IN MINES OF THE LEAD-ZINC INDUSTRY. 5 Mar 59, 13p. JPRS: L-663-N.
Order from OTS $0.50 59-13235

Trans. of Gornyy Zhurnal (USSR) 1958, no. 10, p. 13-18.

The development of mining establishments of the lead-zinc industry during 1951-1957 has been characterized by an intensive rise in the output of ore by the open-pit method. The fraction of ore output by the open-pit method increased from 1.8 percent in 1950 to 19.3 percent in 1957 of the total ore mined. At the present time, the lead-zinc industry has 10 active mines and four under construction. The main mines are briefly described.

Skafa, P. V. and others.
EXPERIMENT ON HYDRAULIC DISRUPTION OF A BITUMINOUS COAL SEAM. [1959] [21]p.
Order from LC or SLA mi$2.70, ph$4.80 59-15133

Trans. from Podz[emnaya] Gaz[ifikatsiya] Ugley (USSR) 1958, no. 2.

Aeronautical Engineering

THE FLYING PLATFORM (Letayushchiy Stend). [1959] [4]p. F-TS-9699/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16050

Trans. of Kryl'ya Rodiny (USSR) 1957, no. 12, p. 33.

A group of Soviet engineers headed by A. N. Rafaelyants has constructed a flying platform. The test pilot of the flying platform Yu. A. Garnayev says that the test flights have revealed the basic principles regarding the selection of suitable controls for vertical take off and landing aircraft.

GRAZHDANSKAYA AVIATSIYA (USSR) 1958 [V. 15] NO. 11, P. 1-40 (Civil Aviation). [1959] 1v. SOV-84-58-11-(1-58)/58.
Order from OTS $0.50, $6.00/year PB 141 078T-11

Consists of abstracts in English.

Antonov, O., Trunchenkov, N., and Belousov, Ye.
"AN-10" AIRCRAFT; ARRANGEMENT OF CABINS; RADIO EQUIPMENT OF THE "Il-18" AIRCRAFT. [1959] 23p. (7 figs. omitted). F-TS-9637/III.
Order from LC or SLA mi$2.70, ph$4.80 59-14111

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958 [v. 15] no. 5, p. 6-11.

Antonov, P.
SPORT JUMPS WITH PARACHUTES. [1959] 152p. 6 refs. G-9344.
Order from LC or SLA mi$7.50, ph$24.30 59-14263

Trans. of mono. Sportivnye Pryzhkis Parashyutom, Moscow, 1956.

The principles of parachuting are explained. Sample mathematical problems are presented which cover such topics as the determination of the greatest operational load, calculation of falling velocity, coefficient of resistance, drift, and duration of free fall.

Nikulin, V. P.
ELECTROMAGNETIC OSCILLOGRAPHS USED IN RESEARCH AND TESTING IN AIRCRAFT ENGINEERING. 17 Apr 59, 5p. JPRS: 657-D.
Order from OTS $0.50 59-11509

Trans. of Priborostroyeniye (USSR) 1958, no. 12, p. 16-18.

Shul'zhenko, M. N. and Mostovoy, A. S.
AIRCRAFT DESIGNING COURSE. PT. II. [1958] [236]p. F-TS-9164/V, pt. II.
Order from LC or SLA mi$10.20, ph$36.30 59-14143-2

Trans. of mono. Kurs Konstruktsiy Samoletov, Moscow, 1956, pt. 2, p. 164-353.

Part 2 of a textbook written for aeronautic technical schools and for those specializing in aircraft construction. Topics discussed in the present section are: (1) Construction of wings and their strength calculations, (2) empennage design and stress analysis, (3) aircraft fuselages and their stress analysis.

Shul'zhenko, M. N. and Mostovoy, A. S.
AIRCRAFT DESIGNING COURSE. PT. III. [1958] [227]p. 25 refs. F-TS-9164/V, pt. III.
Order from LC or SLA mi$9.90, ph$34.80 59-14143-3

Trans. of mono. Kurs Konstruktsiy Samoletov, Moscow, 1956, pt. 3, p. 354-528.

Part 3 of a textbook written for aeronautic technical schools and for those specializing in aircraft construction. Topics discussed in the present section are: (1) Power plants, (2) aircraft controls, (3) aircraft landing gear, (4) heavier-than-air aircraft, (5) system of aircraft design drawings.

Smolin, V.
ELIMINATING THE RUNAWAY OF THE PROPELLER ON THE IL-14 PASSENGER AIRCRAFT (Ustraneniye Raskrutki Vinta na Samolete IL-14). [1959] [9]p. F-TS-9674/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16035

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958 [v. 15] no. 4, p. 29-30.

Sokolov, V. I.
AIRPLANE NAVIGATION. [1958] [162]p. F-TS-10016/V.
Order from LC or SLA mi$7.80, ph$25.80 59-16055

Trans. of mono. Samoletovozhdeniye, Moscow, 1955, p. 3-16 and 120-224.

The present textbook consists of two parts, the first covering the principles of the theory and means of aeronavigation, the second describing the practice of aeronavigation. The book is intended for the students of aviation schools and the flight personnel of fighting units of the USSR Air Force.

Strizhak, A.
A HELICOPTER EXECUTES A COMPLEX MANEUVER (Vertolet Vypolnyayet Slozhnyy Pilotazh). [1959] [8]p. [1 illus. omitted] F-TS-9830/III.
Order from LC or SLA mi$1.80, ph$1.80 59-16044

Trans. from Sovetskaya Aviatsiya (USSR) 1958, no. 142 (3006) 1p.

Zonshain, S. I.
AIRCRAFT DESIGN (Konstruktsiya Samoletov). [1959] [117]p. F-TS-9124/V.
Order from LC or SLA mi$6.00, ph$18.30 59-16036

Trans. of mono., Aerodinamika i Konstruktsiya Samoleta (Aerodynamics and Construction of Airplanes) Moscow, 1955, p. 126-220.

Contents:
Aircraft design
Specifications to be met by aircraft structural parts and criteria in design analysis
Aircraft designs
Wings and tail unit
Fuselages
Aircraft controls
Landing gear of the aircraft
Power plants
Armament and equipment of aircraft
Perspectives for the development of aircraft
(Engineering--Aeronautical)

Chemical Engineering

CONTINUOUS FLOW ULTRAMICROSCOPE VDK-4. 4 Feb 59, 22p. (6 figs 2 tables omitted) JPRS: L-513-N.
Order from OTS $0.50 59-13097

Trans. of mono. Potochyy Ul'tramikroscop VDK-4, 1957, p. 3-33.

Contents:
Definition and purpose of the instrument
Principal data
Diagram of instrument and operating principle
Construction of instrument

Operating rules
Rules for maintenance of instrument
Outfit accompanying the instrument and its packing

KHIMIYA I TEKHNOLOGIYA TOPLIV I MASEL (USSR) 1958 [V. 3] NO. 12, P. 1-68 (Chemistry and Technology of Fuels and Oils). [1959] 1v. SOV-65-58-12-(1-16)/16.
Order from OTS $0.50, $3.00/6 mo. PB 141 060T-7
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

NAUCHNYYE DOKLADY VYSSHEY SHKOLY. KHIMIYA I KHIMICHESKAYA TECHNOLOGIYA (USSR) 1958, NO. 2, P. 205-397 (Scientific Reports of Higher Schools. Chemistry and Chemical Technology). [1958] 1v. SOV-156-58-2-(1-48)/48.
Order from OTS $1.30, $5.00/year PB 141 066T-2
Foreign $1.55, $6.00/year

Consists of abstracts in English.

NEFTYANIK (USSR) 1958, NO. 11, P. 1-34 (Petroleum Worker). [1959] 1v. SOV-92-59-11-(1-36)/36.
Order from OTS $0.60, $3.50/6 mo. PB 141 085T-10
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEFTYANIK (USSR) 1958, NO. 12, P. 1-33 (Petroleum Worker). [1959] [22]p. SOV-92-58-12-(1-24)/24.
Order from OTS $0.60, $3.50/6 mo. PB 141 085T-9
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEFTYANIK (USSR) 1959, NO. 1, P. 1-35 (Petroleum Worker). [1959] 1v. SOV-92-59-1-(1-36)/36.
Order from OTS $0.60, $3.50/6 mo. PB 141 085T-8
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEFTYANIK (USSR) 1958, NO. 9, P. 1-35 (Petroleum Worker). [1959] 1v. SOV-92-58-9-(1-36)/36.
Order from OTS $0.60, $3.50/6 mo. PB 141 085T-12
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEFTYANIK (USSR) 1958, NO. 10, P. 1-35 (Petroleum Worker). [1959] 1v. SOV-92-58-10-(1-30)/30.
Order from OTS $0.60, $3.50/6 mo. PB 141 085T-11
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEFTYANOYE KHOZYAYSTVO (USSR) 1958, [V. 36] NO. 10, P. 1-72 (Petroleum Economy). [1959] [15]p. SOV-93-58-10-(1-19)/19.
Order from OTS $0.50, $3.00/6 mo. PB 141 086T-7
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

NEFTYANOYE KHOZYAYSTVO (USSR) 1958, [V. 36] NO. 11, P. 1-72 (Petroleum Economy). [1959] [16]p. SOV-93-58-11-(1-15)/15.
Order from OTS $0.50, $3.00/6 mo. PB 141 086T-8
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

PESTICIDAL SULFINYL AND SULFONYL ESTERS. [17 Oct 58] 7p.
Order from RIS $10.00 RIS rept. 6709

Trans. of German patent application F 19 439 (12o, 23/03) DAS 1 014 106, by Farbenfabriken Bayer, A. G., Leverkusen, filed 3 Feb 56, pub. 22 Aug 57.

Thiolphosphoric acid esters can be prepared by oxidizing O, O-dialkylthiolphosphoric esters of hydrocyclic 1, 2-dimercaptans with hydrogen peroxide or potassium permanganate in an acid to neutral solution. When using H_2O_2 as the oxidant, aqueous CH_3OH is used as a solvent, and aqueous acetone with M_9SO_4 is used when the oxidant is KM O_4. The 30% H_2O_2 is added when the temperature of the reaction mixture has been lowered to 40-50° C. Cooling is then discontinued, and the reaction mixture is stirred for about 30 min. Water neutralized with a K_2CO_3 solution is used to dilute the mixture and it is then filtered. The filtrate is mixed with a cold saturated K_2CO_3 solution until the sulfinyl ester precipitates. The ester is taken up with methylene chloride and the aqueous solution is twice extracted with methylene chloride. After the combined extracts are dried and the solvent removed, a sulfinyl ester yield of 89.8% of theory remains. It is a viscous, nearly colorless oil, water soluble, which cannot be distilled even under high vacuum, and has uses as a systemic insecticide. Examples and chemical structures are used to illustrate the process.

PROCESS FOR PRODUCING ALKYLTINS. [24 Apr 59] 6p.
Order from RIS $9.25 RIS rept. 97042

Trans. of German patent application K 29 359 (12o, 26/03), DAS 1 048 275, filed 14 July 56, pub. 8 Jan 59, by Kali-Chemie A. G., Hannover.

A process for producing alkyl tins is described. Tin tetrachloride is reacted with alkyl aluminum compounds in the presence of a solvent or suspending agent and of an alkali chloride.

PROCESS FOR PRODUCING 1,5,9-CYCLODODECATRIENES BESIDES OTHER CYCLIC HYDROCARBONS. [20 Mar 59] 7p.
Order from RIS $14.50 RIS-97015

Trans. of German patent application St 12 180 (12o, 25) DAS 1 043 329, by Studiengesellschaft Kohle m.b.H., Mülheim, filed 31 Jan 57, pub. 13 Nov 58.

1,5,9-cyclododecatrienes of the general formula $C_{12}X_{18}$, where X designates hydrogen or methyl, and other hydrocarbons having at least 8 carbon atoms and at least 2 double bonds in the ring, such as diolefin containing gases, can be produced by the reaction of butadiene, isoprene, or piperylene in the presence of catalysts obtained from chromium halides and hydrocarbon aluminums. A very good catalyst is obtained from chromic chloride and trialkylaluminums or dialkylaluminum hydrides, and other useful combinations are listed. When catalysts of chromium chloride and triethylaluminum, preferably in a Cr:Al ratio of 1:5 are used, the reaction products are largely trans-trans-trans-1,5,9-cyclododecatriene. Aliphatic or aromatic hydrocarbons or halogenated hydrocarbons, such as benzene, toluene, chlorobenzene, dichlorobenzene, and hexane may be used as solvents, or the diolefins may be reacted directly in the catalyst mixture. Yields of 50% or more can be expected at room temperature, and raising the temperature increases the reaction. Isomeric reaction products are often formed, but are easily removed by fractional distillation. Products of the invention are valuable starting materials for organic synthesis leading to the production of di-carboxylic acids. The process is illustrated in 8 examples.

Aleksandrov, S. N. and Skop, S. L.
A RAPID DYNAMIC METHOD OF DETERMINING THE SPECIFIC SURFACE AREA OF CATALYSTS. [1959] 6p.
Order from ATS $7.95 ATS-60L29R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 11, p. 62-66.

Aliyev, V. S., Kasimova, N. P. and Al'tman, N. B.
EFFECT OF STEAM ON THE HIGH TEMPERATURE CRACKING OF GAS OIL. [1958] [15]p.
Order from LC or SLA mi$2.40, ph$3.30 59-10793

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv [i Masel] (USSR) 1958, v. 3, no. 8, p. 44-49.
Another translation is available from ATS $9.25 as ATS-58K27R [1958] 7p.

Experiments indicated that inert diluents, for instance CO_2, bringing about a decrease in the partial pressure of the components of the system and contributing to the increase of the general depth of the break up, suppress the secondary reactions and the formation of the light hydrocarbons (H_2, CH_4) in the composition of gas. Under these circumstances the content of ethylene in the gases increases. Steam introduced into the reaction zone acts not only as a diluent, but also as a chemical agent, entering into reaction with the coke: $C + H_2O \longrightarrow CO + H$.
The free hydrogen formed by the interaction of steam with coke, slows down the reactions of dehydrogenation, which lead to the formation (under the conditions of the process) of aromatic hydrocarbons. Because the source of the formation of aromatics in the process is the ethylene, steam, lowering the aromatization, brings about a marked increase of ethylene in the exit gases. The extraction of free hydrogen as a result of the interaction of steam with the coke brings about the fact that the sum of hydrogen in the products of the reaction is greater than its content in the raw material.

Andreyev, E. A., Andryanova, T. I. and others.
STUDY OF THE SECONDARY REACTIONS OF CATALYTIC CRACKING OF HYDROCARBONS BY THE RADIOCHEMICAL METHOD. [1959] 8p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15113

Trans. of Akademiya Nauk SSSR. Doklady, 1954, v. 96, no. 4, p. 781-784.

Antonov, A.
THE RELATIONSHIP OF THE QUALITY AND QUANTITY OF THE GAS OBTAINED BY THE UNDERGROUND GASIFICATION OF MOSCOW COAL TO GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS. [1958] 4p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10205

Trans. of Podz[emnaya] Gaz[ifikatsiya] Ugley (USSR) 1957, no. 4, p. 17-19.

The geological and hydrological regions of the Basovsk, Gosteyevsk, and Shatsk basins consist of a central region covering most of an ancient water reservoir in which coal had accumulated, and a peripheral region around the basins. The coals of the central regions are in thick seams of low ash content between thick clay deposits. The coals of the peripheral regions are in thin seams with high ash content with thin clay and sand for over and under layers. Most of the Shatsk basin is lightly irrigated, and the regions favoring underground gasification of coal appear to overlap. Greater coal seam thicknesses improve the gasification temperatures, promote beneficial chemical reactions, and reduce undesired CO_2. More compact, less porous coals are harder to mine and produce less gas.

Bushin, A. N., Soldatov, B. Ya. and others.
DEHYDROGENATION OF n-BUTANE IN A SEMI-WORKS UNIT ON A MOVING SPHERICAL CATALYST. [1959] 8p.
Order from ATS $9.30 ATS-52L30R

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1958, no. 7, p. 406-409.

Chernyshev [A] B., Lavrov, N. V., and Farberov, I. L.
THE FILTRATION METHOD OF UNDERGROUND GASIFICATION OF COAL. [1959] 7p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15098

Trans. of [Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk]. Izvestiya, 1946, no. 7, p. 969-974.

Danusso, F. and others.
STEREOSPECIFIC POLYMERIZATION OF STYRENE. NOTE III. KINETIC CHARACTERISTICS DURING CATALYSIS BY $Al(C_2H_5)_3$ AND $TiCl_4$. [1959] [15]p. 5 refs.
Order from SLA mi$2.40, ph$3.30 59-15229

Trans. of la Chimica e l'Industria (Italy) 1958, v. 40 [no 8] p. 628-633.

Experiments carried out under especially uniform and selected conditions made possible the study of the principal kinetic aspects of the polymerization of styrene to an isotactic polymer, by means of catalysts prepared by reacting constant molar ratios of triethylaluminum and titanium tetrachloride in benzene solution. The overall reaction is composed of a polymerization reaction and a simultaneously occurring process that affects the catalyst activity. The polymerization reaction is first order, both with respect to the total amount of the catalyst reagents introduced and with respect to the monomer concentration. The process affecting the catalyst during the polymerization can be interpreted as a diminution of its activity as a function of time and not of the monomer concentration. Under the conditions chosen for one series of experiments, this reaction has shown itself to be first order with respect to the catalyst.

Deschiens, Maurice.
MANUFACTURE OF SYNTHETIC ACETIC ACID FROM CALCIUM CARBIDE. [1958] [88]p. (14 figs. omitted) 136 refs.
Order from SLA mi$4.80, ph$13.80 59-10668

Trans. of Chimie et Industrie (France) 1921 [v. 5: no. 3, p. 239-256; no. 4, p. 398-408; no. 5, p. 518-528].

This article is a treatise on the history of the manufacture of acetic acid synthetically from calcium carbide, the difficulties encountered in its industrial development, and the processes themselves. The different industrial patents and the apparatus used for the production of carbide, the generation of acetylene, the production of acetaldehyde and acetic acid are studied, together with economical and practical considerations.

Golger, S. P.
THE PROCESS OF THE UNDERGROUND GASIFICATION OF THIN COAL SEAMS WITH AN AIR BLAST AND A BLAST ENRICHED WITH OXYGEN AT LISICHANSK. [1958] [9]p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-10798

Trans. of P[odzemnaya] G[azifikatsiya] U[gley] (USSR) 1958, no. 2, p. 32-35.

Kaza[s]kiy, B. A., Marushkin, M. N. and Sterligov, O. D.
CATALYTIC DEHYDROGENATION OF ISOPENTANE. [1958] [7]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10314

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1957, v. 117, no. 4, p. 619-622.

Kukhtin, V. A., Kamay, Gilm and Sinchenko, L. A.
TELOMERIZATION OF METHACRYLIC ACID WITH TRIALKYLPHOSPHITES. [1958] 5p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10313

Trans. of *Akad[emiya] Nauk SSSR. Dokl[ady] 1958, v. 118, no. 3, p. 50[5]-508.
Another translation is available from CB $5.00 as 59-12361 (p. 73-76) 1958, 4p.

Kulev, L. P. and Rozhkov, A. M.
PROCEDURE FOR THE PREPARATION OF 4(5)-NITROIMIDAZOLE-CARBOXYLIC ACID. [1958] 2p.
Order from ATS $4.50 ATS-14L29R

Trans. of Russian author's certificate 102,033, filed 15 Feb 55.

Lagidze, R. M.
ALKYLATION OF BENZENE WITH 1,3-BUTANEDIOL DIACETATE AND 2,4,6-HEXANETRIOL TRIACETATE. [1959] 4p.
Order from ATS $6.10 ATS-28L30R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1951, v. 77, no. 6, p. 1023-1026.

Lavrovskiy, K. P. and Brodskiy, A. M.
ON THE TREATMENT OF GASEOUS PARAFFINS UNDER CONDITIONS OF HIGH SPEED CRACKING. [1958] 44p. 48 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-10327

Trans. of Akad[emiya] Nauk SSSR. Inst[itut] Nefti. Trudy, 1954, v. 4, p. 176-198.

Margolis, F. G., Dubovitskiy, A. M., and Glazova, T. V.
THE PRODUCTION OF DICALCIUM PHOSPHATE AND AMMONIUM NITRATE BY THE NITRIC ACID DECOMPOSITION OF PHOSPHATES. [1959] 13p.
Order from ATS $13.15 ATS-64L30R

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1956, no. 1, p. 26-31.

Maslyanskiy, G. N. and Bursyan, N. R.
DEHYDROGENATION KINETICS OF CYCLOHEXANE AND ITS HOMOLOGS ON A CHROMIA CATALYST AT ATMOSPHERIC PRESSURE. [1959] 9p.
Order from ATS $12.35 ATS-78L29R

Trans. of *Zhur[nal] Obshchey Khim[ii] (USSR) 1958, v. 28, no. 10, p. 2656-2662.

Natta, G. and others.
ISOTACTIC POLYMERS FROM VINYL MONOMERS CONTAINING SILICON. [1959] 8p. 14 refs.
Order from SLA mi$1.80, ph$1.80 59-15227

Trans. of la Chimica e l'Industria (Italy) 1958, v. 40, no. 10, p. 813-815.
Another translation is available from SLA mi$1.80 ph$1.80 as 59-10172 [1959] 8p.

Linear polymers of high molecular weight were prepared by polymerization of monomers containing silicon and a vinyl unsaturation. From the crude polymerization products it was possible to isolate, by solvent extraction, amorphous fractions that could not be crystallized, as well as highly crystalline fractions of low crystallinity were isolated that consist of stereoblock macromolecules. The highly crystalline fractions have high melting points which, in some cases (e.g., poly-trimethylallylsilane), may exceed 350°C. The values of density and melting point of the isotactic polymers containing silicon are very close to those of the isotactic polymers derived from the corresponding hydrocarbon monomers.

Nazarov, I. N., Ivanova, L. N., and Rudenko, B. A.
CATALYTIC PRODUCTION OF 2, 3-DIMETHYL-BUTADIENE. [1958] 5p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10315

Trans. of *Akad[emiya] Nauk SSSR. Dokl[ady] 1958, v. 118 [no. 3] p. 509-511.
Another translation is available from CB $5.00 [1958] 4p.

Nusinov, G. O.
THE MATERIAL BALANCE OF THE PROCESS OF UNDERGROUND GASIFICATION. [1958] 11p. 4 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10797

Trans. of P[odzemnaya] G[azifikatsiya] U[gley] (USSR) 1958, no. 2, p. 38-43.

A methodology is presented which was developed by laboratory No. 1 of VNIIP PZG (All-Union Design and Planning Scientific Research Institute of the Underground Gasification of Coal?).

Nusinov, G. O., Brushtein, N. Z., and Kulakov, M. A.
UNDERGROUND GASIFICATION OF COAL ACCORDING TO A SCHEME WITH PRELIMINARY THERMAL PREPARATION OF THE COAL SEAM AND ITS TWO SIDED GASIFICATION. [1958] 11p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10203

Trans. of Podz[emnaya] Gaz[ifikatsiya] Ugley (USSR) 1957, no. 3, p. 16-21.

Reznik, M. G. and Eidel'man, E. Ya.
THE EFFECT OF THE RATE OF HEATING COAL ON THE EVOLUTION OF VOLATILES. [1959] 5p.
Order from ATS $6.50 ATS-18L30R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 8, p. 56-58.

Rozengart, M. I. and Kazanskiy, B. A.
DEHYDROCYCLIZATION OF n-HEPTANE OVER ALUMINUM-CHROMIUM CATALYSTS. [1959] 10p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15116

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 119, no. 4, p. 716-719.
Another translation is available from ATS $5.50, as ATS-68K26R [1958] 6p.

Experiments on the dehydrocyclization of n-heptane showed that catalysts can be prepared which work uninterruptedly, without regeneration, for a period amounting to 27 hours, ensuring an average yield of 67% by weight of aromatics over this period. After 100 hours of operation with periodic regenerations, the duration of the working period of these catalysts dropped to 10 to 12 hours and did not change further in the course of the following 115 to 117 hours of work. After 215 to 217 hours of operation, the surface of the catalysts decreased by a factor of three, and the pore-volume by a factor of one and a half. During this time, the change in the over-all yield of the reaction products and the yield of toluene as referred to the heptane that was passed over the catalyst was insignificant. Presumably one of the causes of this phenomenon is that under the conditions (515°C, space velocity 0.3 hr.$^{-1}$) the reaction of dehydrocyclization over active catalysts does not take place in a kinetic zone, but in a diffusion zone. Experiments with samples of a catalyst of different granulation confirmed this assumption.

Shevlyakur, A. S., Etlis, V. S. and others.
PREPARATION OF ISOTACTIC POLYSTYRENE. [1958] 4p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10539

Trans. of *Akad[emiya] Nauk [SSSR]. Doklady, 1958, v. 122, no. 6, p. 1076-1078.

The reaction conditions suitable for commercial production for the stereo specific polymerization of styrene are provided. The velocity of the polymerization and the yield of the isotactic fraction of the polymer are a function of the concentration of the aluminum triethyl in the diluent (gasoline of the brand "Kalosh"). In view of the particular mechanism of the stereo specific polymerization, the molar ratio $K = Al(C_2H_5)_3 : TiCl_3$ has a very pronounced effect on the yield and the properties of the polymer. The yields of the isotactic fraction and of the amorphous fraction in the polymer are functions of the reaction temperature. An increase in the total yield of polystyrene occurs only due to an increase in the yield of the amorphous fraction. The yield of the isotactic fraction, based on amount of titanium trichloride, is practically not changed. If the ratio of $C_8H_8 : TiCl_3$ is increased from 10 to 15, the proportion of the amorphous fraction in the polymer rises 1.55 to 2 times. The constant yield of the isotactic product can be accounted for by the constant size of the active surface of the catalyst on which the isotactic polymer

is formed. The formation of the amorphous product is apparently not linked to surface effects and occurs in the homogeneous solution following an ionic mechanism. According to the above-described method, polystyrene can be obtained, depending upon the conditions of the reaction, either almost completely in the crystallized form (98.5 to 100%) or with a major content of the amorphous fraction.

Sladkov, A. M. Markevich, V. A. and others.
PREPARATION OF SOME PRIMARY ALCOHOLS FROM ORGANOALUMINUM COMPOUNDS. [1958] 7p. 12 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10229

Trans. of *Akademiya Nauk SSSR. Doklady, 1958, v. 119, no. 6, p. 1159-1161.
Another translation is available from CB for $5.00 [1958] 3p.

Sulimov, A. D., Lobeyev, M. V. and others.
THE INFLUENCE OF THE CHEMICAL COMPOSITION OF AN ALUMINA-COBALT OXIDE-MOLYBDENA CATALYST ON ITS ACTIVITY IN HYDROFINING AND AUTOHYDROFINING PROCESSES. [1959] 6p.
Order from ATS $9.00 ATS-46L30R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 12, p. 32-36.

Zhavoronkov, N.
TO IMPROVE THE TRAINING OF CHEMICAL ENGINEERS. 31 Mar 59, 6p. JPRS: L-1587-D.
Order from OTS $0.50 59-11479

Trans. from Pravda [Moscow] (USSR) 1958, 15 Dec. p. 4.

Electrical and Electronic Engineering

*ELEKTRICHESTVO (USSR) 1958, NO. 9, P. 1-96 (Electricity). [1959] 1v. SOV-105-58-9-(1-34)/34.
Order from OTS $0.80, $4.50/6 mo. PB 141 098T-6
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

*RADIOTEKHNIKA (USSR) 1958, V. 13, NO. 11, P. 3-8/(Radio Engineering) [1959] [19]p. SOV-108-13-11-(1-15)/15.
Order from OTS $0.50, $3.00/6 mo. PB 141 105T-11
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

*RADIOTEKHNIKA I ELEKTRONIKA (USSR) 1958, V. 3, NO. 12, P. 1411-1524 (Radio Engineering and Electronics). [1959] 1v. SOV-109-3-12-(1-13)/13.
Order from OTS $0.70, $4.00/6 mo. PB 141 106T-11
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

SCIENTIFIC SESSION DEVOTED TO "RADIO DAY", MAY 1958. ABSTRACTS OF PAPERS. PART I.
9 Sep 58, 31p.
Order from LC or SLA mi$3.00, ph$6.30 59-10534

Abstracts of papers from Trudrezervizdat, Moscow, Part I.

Abstracts are arranged according to subject matter as follows: Information theory, 27 papers; antenna apparatus, 48 papers, receivers, 18 papers; and transmitters, 17 papers.

VESTNIK SVYAZI (USSR) 1958, NO. 12, P. 1-36 (Herald of Communications). [1959] SOV-111-58-12-(1-38)/38.
Order from OTS $0.60, $3.50/6 mo. PB 141 108T-11
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

VESTNIK SVYAZI (USSR) 1959, NO. 1, P. 1-40 (Herald of Communications). [1959] 1v.
SOV-111-59-1-(1-35)/35.
Order from OTS $0.60, $3.50/6 mo. PB 141 108T-12
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Becker, Gerhard.
CONSTRUCTION AND PROPERTIES OF CRYSTAL OSCILLATORS OF HIGH Q-FACTOR. [1958] 36p. 8 refs.
Order from SLA mi$3.00, ph$6.30 59-10864

Trans. of Archiv der Elektrischen Übertragung (West Germany) 1958, v. 12, no. 1, p. 15-25.

Berlovich, E. E. and Shilyayev, B. A.
A STUDY OF THE TIME CHARACTERISTICS OF PHOTOMULTIPLIERS BY THE DELAYED COINCIDENCE METHOD (Issledovaniye Vremennykh Svoistv Fotoumnozhitelei Metodom Zaderzhannykh Sovpadeniy) tr. by Clifford M. Gordon. 1958, 14p. 8 refs. NRL trans. no. 706.
Order from LC or SLA mi$2.40, ph$3.30 59-10299

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1958, no. 1, p. 62-68.

A delayed coincidence method of A. Lundby (Phys. Rev. 80: 113, 1950) was employed for the determination of the inherent rise time of photoelectron multipliers. For "ΦЭ Y-1B" photomultipliers values in the range 1 to 2 X 10^{-9} sec were obtained, for "ΦЭY-19" photomultiplier, about 4.5 X 10^{-9} sec. The effect of the rise time of photomultiplier pulse current on time measurements was investigated. Measurements with a coincidence circuit, using an "ΦЭY-1B", yielded a value for the fluorescent lifetime of stilbene, of τ_0 = 5.7 X 10^{-9} sec. Measurements of the half-life of the excited nuclear levels of Pr^{141} gave ($T_{1/2}$ = 2.0 X 10^{-9} sec) and for Tl^{203} ($T_{1/2}$ = 2.7 X 10^{-10} sec). It is significant that the efficiency of the coincidence circuit with an "ΦЭ Y-1B" becomes nearly 100% at $2\tau_0$ = 7 X 10^{-9} sec, whereas for the circuit with an "ΦЭ Y-19", saturation sets in at $2\tau_0$ = 2.6 X 10^{-8} sec.

Capart, Alphonse.
LIGHTNING AND RADIOACTIVE LIGHTNING ARRESTORS. [1958] [12]p.
Order from SLA mi$2.40, ph$3.30 59-10663

Trans. of pamphlet, la Foudre et les Paratonnerres Radioactifs, 1953, France.

[Goeschel]
OUR METHOD FOR THE (PRODUCTION OF) SILICON POWER RECTIFIERS. [1958] 4p.
Order from SLA mi$1.80, ph$1.80 59-10789

Trans. of Siemens Z[eitschrift] (West Germany) 1958, v. 32, p. 109.

Henker, Fritz.
NEW CONTACTS FOR ELECTRICAL ENGINEERING. 4 Jan 45, 9p. (8 figs. omitted) 4 refs.
Order from SLA mi$1.80, ph$1.80 59-15163

Trans. of [ETZ] Elektrotechnische Zeitschrift. [Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1943, v. 64, no. 25/26, p. 347-349.

Contact materials were investigated with a special experimental set-up for efficiency and life with dc and ac current. Copper contacts exhibited a very high consumption and broke down after a few thousand connections. More than 14 times the number of connections could be obtained with silver contacts. Substantially better results were obtained with new silver alloys and new copper alloys, particularly when different alloys were used for different polarities.

Kaltofen, A., Kettler, H., and Ritz, H.
380 KV INSTRUMENT TRANSFORMERS AT ROMMERSKIRCHEN AND HOHENECK. [1959] 11p.
Order from ATS $11.80 ATS-69L29G

Trans. of [ETZ] Elektrotech[nische] Z[eitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1958, v. 79, no. 7, p. 235-240.

Madelung, Otfried.
ON THE THEORY OF THE p-n JUNCTION FOR VANISHING LIFETIME OF THE CHARGE CARRIERS. [1958] 5p. 4 refs.
Order from SLA mi$1.80, ph$1.80 59-10752

Trans. of Z[eitschrift für] Naturforschung (West Germany) 1957, v. 12a [no. 11] p. 1020-1021.

The theory of p-n junction rectifiers which have a symmetrical junction with equal parameter values of the majority and minority carrier on both sides is discussed. Considering the adjacent contact area of the boundary layer, the current is practically a pure field current in the blocking direction, but a pure diffusion current in the forward direction. In the remaining portion of the boundary layer, the behavior of the majority carriers is not influenced by the minority carriers. It is assumed that the field distribution at the boundary layer is not influenced by the minority carriers. Thus, the field current in the blocking direction is proportional to the charge carrier density. In the forward direction, the current is determined by the density gradient, and not by the density. The current and density distribution of majority carriers are almost uninfluenced by the minority carriers. The I-V characteristic curve can be calculated by approximating the field intensity E(x) and using the boundary field intensity E(O). The density distribution of electrons in the n-area of the p-n junction for reduced voltages is graphically displayed.

Makrushenko, P.
WITHOUT REMOVING THE TELEPHONE RECEIVER, tr. by A. Werner. 16 Dec 58, 6p. (1 photo omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-10859

Trans. from Ogonek (USSR) 1957, v. 35, no. 29.

Predictions in popular terms are presented on what the telephone of the near future will be like. The discussion is slanted for Russian comrades who don't have a telephone.

Morosanov, I. S. and Chinayev, P. I.
CONFERENCE ON THE THEORY AND APPLICATION OF DISCRETE AUTOMATIC SYSTEMS. 14 Apr 59, 16p. 1 ref. JPRS: L-731-N.
Order from OTS $0.50 59-13411

Trans. of *Avtomatika i telemekhanika (USSR) 1959, v. 20, no. 1, p. 100-106.

Topics of several papers are noted which were presented at the conference held in the Moscow House of Science on Sept. 22 to 26, 1958.

Müller, H.-G., Neumann, W. and Stühlen, H.
PROTECTIVE EQUIPMENT IN THE TRANSMISSION OF 380 KV BETWEEN ROMMERSKIRCHEN AND HOHENECK. [1959] 14p.
Order from ATS $12.95 ATS-68L29G

Trans. of [ETZ] Elektrotech[nische] Z[eitschrift.] Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1958, v. 79, no. 7, p. 249-254.

Ovseyevich, I. A. and Pinsker, M. S.
ESTIMATE OF THE CAPACITY OF CERTAIN REAL COMMUNICATION CHANNELS, tr. by Morris D. Friedman. 28 Aug 58, 18p. 5 refs. qd-3309.
Order from LC or SLA mi$2.40, ph$3.30 59-10199

Trans. of *Radiotekhnika (USSR) 1958, v. 13, no. 4, p. 15-25.

Using the results obtained earlier the capacity is estimated of (1) a real communication channel with parameters fixed in time; (2) a channel for which the time-variations of the parameters have the shape of white noise; and (3) a channel which is a combination of the first two. It is shown by examples that the results obtained are a generalization of the known case of Sunde and Feinstein.

Persikov, M. V.
DIRECTIONAL COUPLER FOR H_{01} MODE IN A CIRCULAR WAVEGUIDE. [1958] 22p. 7 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10885

Trans. of *Radiotekhnika i Elektronika (USSR) 1957, v. 2, no. 1, p. 65-74.

A coupler for a circular waveguide with a slotted measuring section is studied. Conditions for separating the H_{01} mode from other types of modes are determined analytically; calculating formulae are derived for coupling factors, directivity and suppression of undesirable types of modes. Results indicate that the azimuthal system of rectangular waveguides coupled with the circular waveguide by means of a longitudinal system of slots provides for directional energy sampling for any one mode from the waveguide channel, excited by several types of modes. In order to obtain high parameters for directional couplers it is expedient to suppress the undesirable types of modes, having a phase constant which is proximate to the constant of the separated mode, with the aid of the azimuthal system of rectangular waveguides; the remaining types of modes are expediently suppressed by a longitudinal system of slots. Rating and experimental verification of models of directional couplers indicate that for $2R/\lambda \leq 1.6$ it is possible to obtain satisfactory results with two rectangular waveguides and a comparatively simple longitudinal system of slots. For measurements with the aid of directional couplers in waveguide channels having high $2R/\lambda$ ratios, the developed device can be used with conical junctions from small to large diameters. Models of the purposed directional couplers make it possible to measure for the H_{01} mode in circular waveguide channels small coefficients of reflection (of about 30 to 40 decibels), the power through the given waveguide section, the attenuation of the H_{01} mode in separate waveguide elements and the losses during conversion of the H_{01} mode to modes of other types.

Sevast'yanov, B. A.
AN ERGODIC THEOREM FOR MARKOFF PROCESSES AND ITS APPLICATION TO TELEPHONE SYSTEMS WITH UNCOMPLETED CALLS. [1958] 23p. 4 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10884

Trans. of *Teoriya Veroyatnostey i Yeye Primeneniya (USSR) 1957, v. 2, no. 1, p. 106-116.

Let $P(x, t, A)$ be the probability of transition from state $x \in \Omega$ to measurable set A in time t of a homogeneous Markov process in space Ω. Let $P_t(A)$ be the probability that the system is in measurable set A at moment t if at $t = 0$ distribution P_0 is valid. Stationary distribution P is called ergodic if for each initial distribution P_0, variation $V(P_t - P) \to 0$ for $t \to \infty$. The following ergodic theorem is proved: A Markov process homogeneous in time has a unique stationary probability distribution which is ergodic if for any $\varepsilon > 0$ there exists measurable set C, probability distribution R in Ω and values $t_1 > 0$, $k > 0$, $K > 0$ such that (1) $kR(A) \leq P(x, t_1, A)$ for all points $x \in C$ and measurable sets $A \subseteq C$; for any initial distribution P_0 there exists a t_0, such that for any $t \geq t_0$; (2) $P_t(C) \geq 1 - \varepsilon$; and (3) $P_t(A) \leq KR(A) + \varepsilon$ for any measurable set $A \subseteq C$. This theorem is used to substantiate Erlang's formulas for the ease of an arbitrary distribution law for the duration of conversation with a finite mean value.

Strutt, M. J. O. and Sun, S. F.
POWER MEASUREMENT AND CONTROL IN POLYPHASE NETWORKS BY MEANS OF SEMICONDUCTORS. [1958] [16]p. 9 refs. A. C. S. I. L. Trans. no. 1023.
Order from SLA mi$2.40, ph$3.30 59-10990

Trans. of Archiv fŭr Elektrotechnik (Germany) 1956, v. 42 [no. 3] p. 155-164.

A Hall wattmeter for a 3-phase 3-wire system is described which was designed and constructed with the following features: (1) The total power (active, reactive, or apparent) is given by a single indicator, (2) the indication, within the limits of error for class 0.2, is independent of temperature from about 5 to 40 C, and (3) power output (at least a few milliwatts) is sufficient to actuate relays. Indium antimonide wafers were used to meet the above requirements.

Tseytlin, M. Z.
TRANSISTORIZED FREQUENCY DIVIDERS. [1958] 21p. 6 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10871

Trans. of *Elektrosvyaz' (USSR) 1957, v. 11, no. 9, p. 33-41.

Two transistorized division circuits for frequencies of sinusoidal oscillations are analyzed. A regenerative circuit with multiplier and converter employing junction transistors (type P2B) provided a stable frequency division to about 25 kc for a division factor of 10. A regenerative circuit proposed by V. M. Rozov (Elektrosviaz', No. 6, 1956) employing one point-contact transistor (type S2A) was found to provide stable frequency division for division factors of 14 to 16.

Vejvodova, J[iřina].
ON THE PROBLEM OF MAGNETIC FOCUSING OF ELECTRON BEAMS EMITTED WITH THERMAL VELOCITIES. [1958] 17p. 4 refs.
Order from SLA mi$2.40, ph$3.30 59-10955

Trans. of [Chekhoslovatskii Fizicheskii Zhurnal] (Czechoslovakia) 1957, v. 7, no. 2, p. 191-201.

The current density distribution in beams focused by a longitudinal magnetic field and the total current through the anode aperture as a function of the intensity of the focusing magnetic field for the circular and the rectangular beams are determined. This relation has a characteristic curve with maxima and increasing minima with the magnetic field intensity. The location of the latter is determined and an expression for the respective magnetic field intensity is found. The relative current peak (correspondingly, the relative current density peak on the beam axis) was determined as the ratio of the difference of the maximum to the minimum current intensity. The negative logarithm of this function was the measure of focusing of the given system, which made it possible to determine the required intensity of the focusing field.

Mechanical Engineering

ENERGETIK (USSR) 1958, NO. 2, P. 1-40 (Power Engineer). [1959] 1v. SOV-91-58-2-(1-31)/31.
Order from OTS $0.60, $3.50/6 mo. PB 141 084T-12
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

ENERGETIK (USSR) 1959, NO. 2, P. 1-40 (Power Engineer). [1959] 22p. SOV-91-59-2-(1-33)/33.
Order from OTS $0.60, $3.50/6 mo. PB 141 084T-11
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Kandalova, L. I. ed.
HANDBOOK OF THE CONSTRUCTION OF EQUIPMENT FOR BUILDING HYDROELECTRIC POWER STATIONS. 30 Jan 59, 238p. (129 figs. omitted). JPRS L-1448-D.
Order from OTS $3.50 59-11435

Trans. of mono. Spravochnik, Stroitel'nogo Oborudovaniya dlya Gidroenergeticheskogo Stroitel'stva, Moscow and Leningrad, 1954, p. 3-4, 7-55, 80-127, 141-152, and 177-216.

Contents:
Excavators
Scrapers and bulldozers
Graders and rollers
Auxiliary machines
Equipment for concrete and reinforced-concrete work
Equipment for processing materials from quarries and open pits
Equipment for preparing concrete mixtures
Equipment for transporting and placing concrete mixtures
Transportation without rails
Water transportation
Equipment for loading-unloading and warehouse operations

Vilenskiy, M.
SOME PROBLEMS OF THE USSR ELECTRIC-POWER BALANCE IN THE LIGHT OF THE GOALS OF THE LONG-RANGE PLAN. 19 Mar 59, 20p. JPRS: L-1568-D.
Order from OTS $0.50 59-11469

Trans. of * Voprosy Ekonomiki (USSR) 1958, no. 10, p. 58-70.

Ordnance, Missiles, and Satellite Vehicles

Leunig, H., Walter, H. and Müller, P.
MANUFACTURE OF COMBUSTIBLE CARTRIDGE CASES FROM NITRATED PULP, tr. by George R. Loehr. Sep 57 [14]p. Picatinny Arsenal Trans. No. 16.
Order from LC or SLA mi$2.40, ph$3.30 59-12430

The informal narrative of H. Leunig based on his personal recollection indicates that nitropulp cartridges were made at the Army Ballistics Research Laboratory at St. Louis, France, from refined cellulose sulfate, using 98% nitric acid for nitration. The stabilized nitropulp was dried by hot air, cut into cartridge-length strips and wrapped in 3 layers around a pin, with cold-hardening Araldite lacquer as an adhesive. Disks of the nitropulp were bonded to the bottom of the resultant tubes as a base. An electric ignition element was installed, with contact supplied by bonded aluminum foil. Two related patent claims are included.

Nesmeyanov, A. N.
A GREAT VICTORY OF SOVIET SCIENCE. [1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-15265

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1958, v. 28, no. 11, p. 3-9.

This is a report of an address by Nesmeyanov, President of the Academy of Sciences of the USSR, delivered in the Hall of Columns of the House of the Soviets on the 3rd of October, at a meeting of scientists and representatives of the Moscow community to mark the anniversary of the first artificial earth-satellite. The translation omits a formal introduction in which the speaker compares the launching of the first sputnik to great scientific turning-points in human history, such as Mendeleyev's discovery of the periodic table, the conquest of the air, and the invention of wireless telegraphy. Some results are noted of the researches carried out by means of the three Soviet artificial earth satellites.

Shternfel'd, Ari.
SOVIET SPACE SCIENCE. 2d ed. rev., with foreword and epilogue by Willy Ley. 1959, 361p.
Order from Basic Books, Inc., New York $6.00

Bound trans. of mono. Iskusstvennyye Sputniki, 2d ed., Moscow, Nov 57.
Paper bound edition is available from OTS $6.00 as PB 141 351T, F-TS-9570/V [1958] 424p.

Sanitation and Safety Engineering

Alekseyeva, M. V. and Yelfimova, Ye. V.
SEPARATE DETERMINATION OF CHLORIDE AND HYDROCHLORIC ACID AEROSOLS IN AIR.
22 Apr 59, 5p. JPRS: L-741-N.
Order from OTS $0.50 59-13435

Trans. of Gigiyeniya i Sanitariya (USSR) 1958, no. 8, p. 71-72.

An aerosol of hydrochloric acid was dissolved in water, and the test was divided into three parts: (1) determinations were made of total acid by microtitration methods, using methyl red as an indicator; (2) determinations were made of sulfuric acid and sulfates by the turbidometric method with barium chloride; and (3) determinations were made of total chloride ions, also by the turbidometric method with silver nitrate. Calculations were to be carried out with the single formula X= (a. k. 7)/2. The total volume of the sample was 7 ml, with tests run on 2 ml. In determining total acids, a was equal to the amount of base (in ml) required to neutralize 2 ml of the sample; k was 0. 182, since 1 ml of 0. 005N NaOH corresponds to 0. 182 mg HCl. In determining sulfuric acid, a was equal to the amount of H_2SO_4 (in mg) found in 2 ml of the sample; k was equal to 0. 73 (the coefficient of conversion from H_2SO_4 to HCl). Then, the amount of hydrochloric acid and of chlorides in the sample could be computed At first, the method was worked out on solutions of precise, known concentrations, and then determinations in a gaseous medium were made. Determinations of hydrochloric acid in the presence of sulfuric acid and of chlorides gave satisfactory results.

Nebogibchenko, M. K.
PRESENT STATE OF AIR POLLUTION IN CITIES CAUSED BY AUTOMOBILE EXHAUST GASES AND PROBLEMS RELATED WITH ITS CONTROL.
22 Apr 59, 7p. JPRS: L-739-N.
Order from OTS $0.50 59-13433

Trans. of Gigiyeniya i Sanitariya (USSR) 1958, no. 8, p. 6-9.

Data are discussed which indicate that reduction or elimination of the air pollution of cities by exhaust gases of autovehicles must be accomplished through (1) improvement of automobile motors and carburetors in order to achieve a more complete combustion of fuel, (2) the elaboration of methods of detoxifying the exhaust gases of motor vehicles, and especially of methods of burning these gases to the end point of combustion, and (3) strict control of the function of motors under conditions in which they are to be used in daily operation, and the organization in large garages of regulative shops for the testing and regulation of carburetors, combustion cylinders, and fuel pumps.

Vinberg, G. G.
SIGNIFICANCE OF PHOTOSYNTHESIS FOR OXYGEN ENRICHMENT OF WATER DURING SELF-PURIFICATION OF POLLUTED WATERS (Znacheniye Fotosinteza dlya Obogashcheniya Vody Kislorodom pri Samoochishchenii Zagryaznennykh Vod). [1958] 16p. 11 refs. C. T. S. no. 317.
Order from LC or SLA mi$2. 40, ph$3. 30 59-10234

Trans. of Vsesoyuznoye Gidrobiologicheskoye Obshchestvo. Trudy (USSR) 1955, v. 6, p. 46-69.

In many cases the value for photosynthetic re-aeration comes up to or even significantly exceeds the value for atmospheric re-aeration. Depending on the conditions in which photosynthetic re-aeration on account of phytoplankton proceeds, it can be accompanied either by a decrease or by an increase of B. O. D. In the conditions of a shallow reservoir filled with polluted waters the 24-hourly fluctuations of dissolved oxygen content arise not so much under influence of the cessation of photosynthesis at night, as by consequence of the rather slower consumption of oxygen by the bottom during the daytime with the establishment of a thermic stratification of the water. The method analysed for calculations of the elements of oxygen balance, applicable alike to rivers and reservoirs with a slow-flowing current, can be especially useful during the study of the oxygen regime and the self-purifying capacity of reservoirs.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Food

Alais, Charles.
STUDY OF NON-PROTEIN NITROGEN SUBSTANCES SEPARATED FROM THE CASEIN OF COW'S MILK BY THE ACTION OF RENNET (Etude des Substances Azotées Non-proteiques (NPNO Separées de la Caséine du Lait de Vache sous l'Action de la Presure) tr. by Samuel Misler. 31 July 57 [22]p. (foreign text included).
Order from SLA mi$2. 70, ph$4. 80 59-10224

Trans. of International Dairy Congress (no. 14) [held at Rome] 1956, v. 2, pt. 2, p. 823-834.

Arman, Georges and Prost, Jean
PROCESS AND EQUIPMENT FOR THE MANUFACTURE OF CHEESE (Procédé et Dispositif pour la fabrication des Fromages). [1956] [9]p.
Order from LC or SLA mi$1. 80, ph$1. 80 59-10361

Trans. of French patent 1, 118, 129, Gr. 2, Cl. 4; applied for 31 Dec 54, granted 12 Mar 56, pub. 31 May 56.

A procedure is described for making cheese which simplifies greatly the number of manipulations and speed up the whole process. This method consolidates all of the operations, such as the moulding of the cheese, the separation of the curd, drainage, removal and returning of the serum in the same container in which the rennet action has taken place.

Hostettler, H., Stein, J., and Bruderer, G.
THE PROBLEM OF THICKENING OF STERILIZED MILK. [1958] 28p. (12 figs. omitted) 40 refs.
Order from SLA mi$2.70, ph$4.80 59-10462

Trans. of German language monograph.

Milevich, A.
MANUFACTURE OF CANDIED CHEESE CURDS (Vyrabotka Glazirovannykh Syrkov) tr. by Pauline C. Lamot. Sep 57 [6]p.
Order from LC or SLA mi$1.80, ph$1.80 59-10188

Trans. of Molochnaya Prom[yshlennost'] (USSR) 1954, v. 15, no. 4, p. 40-41.

Pien, Jean.
PROJECTION APPARATUS FOR THE EXACT READING OF BUTYROMETERS (Appareil a Projection pour la Lecture Precise des Butyrometres) tr. by Carl Demrick. [1958] [19]p. 4 refs. (includes foreign text).
Order from SLA mi$2.40, ph$3.30 59-10302

Trans. of International Dairy Congress (no. 14) [held at] Rome. Proc[eedings] 1956, v. 3, pt. 2, p. 386-397.

A reading apparatus was developed which permits a very accurate evaluation of the number of graduations occupied by the column of fatty matter. The principle of the apparatus is described.

Shal'nova, M. N.
ON THE FORMATION OF TOXIC AGENTS DURING RADIATION STERILIZATION. 1 Apr 59, 6p. (5 figs omitted) 5 refs. JPRS: 1413-N.
Order from OTS $0.50 59-13360

Trans. of Zhurnal Obshchey Biologii (USSR) 1958 v. 19, no. 3, p. 234-238.

The formation of biologically active and toxic substances was investigated following intensive irradiation of yeast cells. As biological indicators for these substances, yeast cultures and cultures of amoebae were used. Studies showed that in irradiated yeasts grown for a time after irradiation, biologically active and toxic substances are formed which noticeably influence the respiratory processes of the indicator yeast cultures, and the activity and viability of amoebae fed with irradiated yeasts. This influence was exhibited in a somewhat different fashion in the case of yeasts used immediately after irradiation and by those grown for a time after irradiation. Whereas, immediately following irradiation, substances are produced by the cells which stimulate respiration of indicator yeast cultures and fail to suppress the activity of amoebae to any great extent, in yeast cells which continue metabolizing for a time after irradiation, toxic substances accumulate which suppress yeast respiration and exert a markedly unfavorable influence on amoebae. Hence, it appears that toxic substances are formed in the process of continuation of altered metabolism of yeast cells.

Wurziger, J. and Lindemann, E.
RAPID DETECTION OF ANTOXIDANTS IN LARD. [1958] 11p.
Order from SLA mi$2.40, ph$3.30 59-10223

Trans. of Die Fleischwirtschaft (Germany) 1958, v. 10 [no. 6] p. 405-407.

Simple, quick, and inexpensive methods that need no special equipment are described for detecting the antioxidants generally added to lard. The methods are sufficiently accurate for purposes of control of imported lard, and in many cases they permit a quantitative estimation.

Yegiazarov, G. M.
THE AFTEREFFECT OF IONIZING RADIATION ON THE VITAMIN C AND CAROTENE CONTENT OF CERTAIN PREPARATIONS AND FOODSTUFFS. 27 Jan 59, 4p. 2 refs. JPRS: L-1438-D.
Order from OTS $0.50 59-11432

Trans. of Voprosy Pitaniya (USSR) 1958, v. 17, no. 5, p. 9-11.

Samples of sauerkraut, tomato paste, vitamin-C pills, and a preparation of carotene in oil were exposed to dosages of gamma radiation from 100000 r to 300000 r. The irradiated samples were stored in darkness for 5 to 60 days at 120°C. Consistency, color, odor and taste of all samples remained unchanged. There was no significant change in vitamin C content of the foodstuffs. The destruction of carotene in the oil preparation is attributed to the action of peroxide compounds formed by irradiation of the oil.

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 9, 4 MAY 59]. [1959] [41]p. 123 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-16140

Trans. of unevaluated information selected from Russian-language publications.

Achievement levels and goals are described in narrative form, relating to (1) the aircraft industry, (2) automotive industry, (3) construction machinery, (4) production machinery, (5) presses and foundry machines, and (6) power machinery.

Blinnik, S. I.
STRENGTH CALCULATION OF THE COLUMNS IN A HYDRAULIC PRESS (Raschet na Prochnost' Kolonn Gidravlicheskogo Pressa). [1958] [38]p. 20 refs. F-TS-10038/V.
Order from LC or SLA mi$3.00, ph$6.30 59-14115

Trans. of mono. [Raschety na Prochnost' Elementov Mashinostroitel'nykh Konstruktsiy] (Calculating the Strength of Elements in Machine-Building Designing) Moscow, 1955, p. 178-205.

Kolchenko, A. V.
TURBO-DRILLING WITH A REDUCTION IN PRESSURE AFTER THE TURBINE (O Turbinnom Burenii s Ponizhennym Davleniyem Posle Turbiny). [1958] 2p. 1 ref. C. T. S. 325.
Order from LC or SLA mi$1.80, ph$1.80 59-10362

Trans. of Akademiya Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izvestiya, 1956, no. 4, p. 139-141.

Methods of reduction of operating pressures of turbodrills are proposed. Present equipment is characterized by very high pressures at the pumps which bring about a drop in pressure of 40-50 atm at the turbine and pressure head losses throughout the entire system: maximum drilling depth for a given pump is inversely proportional to the pressure head losses.

Engines and Propulsion Systems

Sanger, Eugene
THE THERMODYNAMICS OF ROCKETS. [1958] 11p.
Order from SLA mi$2.40, ph$3.30 59-10474

Trans. from French trans. of Luftfahrttechnik (West Germany) 1955, v. 1, no. 1, p. 14ff.

Savinovskiy, D. A.
THE WATER REGIME IN HIGH PRESSURE BOILERS WITH NATURAL CIRCULATION. [1958] 5p.
A. C. S. I. L. Trans. no. 1043.
Order from LC or SLA mi$1.80, ph$1.80 59-10992

Trans. of Energetik (USSR) 1956, no. 12, p. 1-3.

Manufacturing Equipment and Processes

STANKI I INSTRUMENT (USSR) 1958 [V. 29] NO. 9, P. 1-45 (Machine Tools and Tools). [1959] [20]p.
SOV-121-58-9-(1-21)/21.
Order from OTS $0.60, $3.50/6 mo. PB 141 121T-3
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Boychenko, M. S. and Rutes, V. S.
CONTINUOUS TEEMING OF STEEL (Nepreryvnaya Razlivka Stali). Mar 57 [10]p. (3 figs. omitted).
C. T. S. no. 283.
Order from LC or SLA mi$1.80, ph$1.80 59-10309

Trans. of Liteynoye Proizvodstvo (USSR) no. 3, p. 1-4.

In this process liquid metal is poured into a mould (crystallizer), from the lower end of which is drawn, with the aid of a movable bottom, an ingot partially solidified round the perimeter of the crystallizer. After its thorough solidification during its travel, this ingot is cut into required lengths and put into storage. Arrangements are in progress in SSSR for the use of continuous teeming of steel in plants of vertical and inclined types, with a stationary or moving crystallizer with an intermittent or continuous movement of the ingot.

Klimakhin, A. A.
PROFILE CUTTERS FOR MILLING TURBINE BLADES OF HEAT-RESISTANT STEELS (Fasonnyye Frezy dlya Obrabotki Turbinnykh Lopatok iz Zharoprochnykh Staley). [1959] 14p. F-TS-9132/V.
Order from LC or SLA mi$2.40, ph$3.30 59-14113

Trans. of Stanki i Instrument (USSR) 1956, v. 27, no. 12, p. 23-25.

Kottmeier, Fritz
APPLICATION OF CENTRIFUGAL SHOT DESCALING PLANTS IN BAR DRAWING PLANTS. [1959] 21p. 7 refs.
Order from SLA mi$2.70, ph$4.80 59-10373

Trans. of Stahl und Eisen (West Germany) 1958, [v. 78] [no. 6] p. 358-364.

The construction and method of operation of a shot descaling installation using wire granules propelled by blowers and throwing blades for the smoothing of bar steel is described.

Krevelen, D. W. van.
PROGRESS IN THE KNOWLEDGE OF INDUSTRIAL REACTION CONTROL. [1959] 16p.
Order from ATS $12.50 ATS-06L29G

Trans. of Chem[ie]-Ing[enieur]-Tech[nik] (West Germany) 1958, v. 30, no. 9, p. 553-559.

Lohrke, E.
OPERATING EXPERIENCE IN DIE- AND PRESSURE-CASTING. [1959] 7p. 8 refs.
Order from SLA mi$1.80, ph$1.80 59-15142

Trans. of Maschinenbau (Germany) 1940, v. 19, no. 11, p. 481-[484].

Malyshev, N. Z.
THE MOTORBUS FACTORY AT L'VOV (L'vovskiy Abtobusnyy Zavod) tr. by M. A. H. [1958] 4p. [2 figs. omitted] H-2093 B.
Order from OTS $0.50 59-11284

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1958 [no. 1] p. 39-40.

The motor bus and an automobile crane produced at the L'vov plant incorporate developments made since 1951. The new passenger bus will have a hydraulic control device, new brakes, pneumatic driver's control booster, hydromechanical transmission box, and improved motor cooling. The cab will be heated and the bus will have more convenient, better designed seats. The autocrane is lighter weight, has an enclosed cab, a revolving platform, a new gantry, and a non-revolving platform with external reinforcements. The number of hours required for its manufacture has been reduced by 1/3, and production cost reduced by 1/2. Operations are being coordinated to increase output while decreasing labor. Automatic high speed lathes, drills, cutters, and other pneumatic and hydraulic equipment have mechanized over 300 operations, and power units which combine tools are being mounted on existing work benches, increasing the number of operations performed on a bench. Unilateral and bilateral drawing of chassis is achieved with sheet pressing, and cold pressing of parts has replaced forging and casting. Other new installations include 18 runway cranes, 6 monorails with telphers, 17 revolving jibs, and 1/2 t. modernized electric telphers to lift and move materials, eliminating manual handling.

Popov, A. N. and Litver, S. L.
DEVELOPMENT OF THE TECHNOLOGY OF MANUFACTURE OF PRESSURE PIPES OF PRESTRESSED CONCRETE AND THEIR TESTING. [1958] 20p.
Order from ATS $22.40 ATS-01L29R

Trans. of Akademiya Arkhitektury SSSR. Nauch[no]-Issledovatel'[skiy] Inst[itut] Betona i Zhelezobetona. Trudy, 1958, no. 3, p. 140-162.

Prusak, Jan.
HARD-CHROMIUM PLATING OF WOODWORKING TOOLS (Tvrde Chromovani Drevoobrabecich Nastroju) tr. by M. Slade. 1958 [19]p. 8 refs. Trans. no. 4037.
Order from SLA mi$2.40, ph$3.30 59-10183

Trans. of Drevársky Výskum (Czechoslovakia) 1957, v. 2, no. 2, p. 235-249.

A hard chromium layer applied to the near surface of tools which can be sharpened from the front improves the durability of their cutting edges. Tests with varying types of chromium-plated tools carried out under normal industrial conditions indicate an average improvement of approximately five times the original quality.

Satel', E. A.
REFERENCE BOOK OF A MECHANICAL ENGINEER, VOL. 5, CHAP. I: TECHNOLOGY OF CASTING. [1958] 172p. 74 refs. F-TS-9083/V.
Order from LC or SLA mi$8.10, ph$27.30 59-14108

Trans. of Spravochnik Mashinostroitelya, Moscow, 1956, v. 5, ch. 1, p. 1-88.

Topics discussed in the present chapter are: (1) Mold materials, (2) classification of cores, (3) binding materials, (4) casting boxes and patterns, (5) the molding process, (6) modern methods of feeding steel castings, (7) the melting of cast iron, (8) steel melting, (9) nonferrous casting, (10) technological principles of the design of cast machine details. There is a 74-item bibliography of Soviet sources.

Satel', E. A.
[REFERENCE BOOK OF A MECHANICAL ENGINEER] VOL. 5, CHAP. II: THE TECHNOLOGY OF FORGING AND STAMPING: FREE FORGING AND VOLUME STAMPING. [1958] [177]p. 49 refs. F-TS-9083/V.
Order from LC or SLA mi$8.10, ph$27.30 59-14158

Trans. of Spravochnik Mashinostroitelya, Moscow, 1956, v. 5, ch. 2, p. 89-179.

Satel', E. A.
[REFERENCE BOOK OF A MECHANICAL ENGINEER] VOL. 5, CHAP. III: THE TECHNOLOGY OF WELDING: ELECTRIC ARC WELDING. [1958] [99]p. 52 refs. F-TS-9083/V.
Order from LC or SLA mi$5.40, ph$15.30 59-14101

Trans. of Spravochnik Mashinostroitelya, Moscow, 1956, v. 5, ch. 5, p. 180-231.

Stayev, K. P. and Finkel', E. Ya.
A HIGHLY PRODUCTIVE METHOD OF ROLLING FASTENING THREAD (Vysokoproizvoditel'nyy Metod Nakatyvaniya Krepeshnykh Rez'b). [1958] 3p. (2 figs. omitted) C.T.S. no. 328.
Order from LC or SLA mi$1.80, ph$1.80 59-10194

Trans. of Stanki i Instrument (USSR) 1956, v. 27, no. 2, p. 21-23.

A new automatic machine was developed for the formation of a thread or any other profile on the surface of a solid of rotation. This machine operates on the method of continuous feed.

Thews, Edmund R.
FLUXING- AND COVER- MEDIA FOR BRONZE AND BRASS MELTS. [1959] 10p.
Order from SLA mi$1.80, ph$1.80 59-10648

Trans. of Chemiker Z[eitung] (Germany) 1940, v. 64, 23 Oct, p. 420-423.

Transport, Traction and Hoist Facilities

M-72M MOTORCYCLE. MOSKOVICH 402. GAZ-51A. UAZ-450, tr. by Hutcheson. [1959] 9p. (illus. omitted). H-2193.
Order from OTS $0.50 59-11886

Trans. of mono. Mototsikl M-72M. Moskvich 402. GAZ-51A. UAZ-450, pub. by Ministry of Motor Vehicles Industry of the USSR.

MADE IN CHINA (Sdelano v Kitaye) tr. by H. Holz. [1958] H-1789.
Order from OTS $0.50 59-11217

Trans. from [Krasnaya Zvezda] (USSR) 1958, [no. 161] p. 3.

Features incorporated in a six-passenger car under production in Changchun, China, were discussed. The car has a 70-hp engine and a speed up to 130 km/hr. It consumes between 9 and 10 liters of fuel per 100 km. Trucks are produced in Shanghai, Changchun, Nanking, and Fuchow. A 3-wheeled, 4-passenger car is produced in Peking with a market price just above that of a motorcycle. The first universal wheeled tractor, with a 40-hp engine, was recently made at a Tientsin Tractor Plant. Small displacement type tractors are being made in a number of machine shops. The first "AN-2" type airplane was produced and tested in China near the end of 1958, and mass production began in 1959. The Shanghai Machine Construction Plant recently built the first electrical locomotive capable of hauling a train at a speed of 70 km/hr. Thirty of these locomotives will be built during 1959. The first domestically built Diesels will be in operation this year. An ocean going freighter of 8,700 tons was recently launched. Construction will begin this year on an ocean liner with a displacement of 10,000 tons.

TRANSPORTATION, COMMUNICATIONS, AND ELECTRIC POWER IN THE USSR [NO. 15, 22 APR 59]. [1959] [53]p. 139 refs.
Order from LC or SLA mi$3.60, ph$9.30 59-14912

Trans. of unevaluated information selected from Russian language publications.

Achievement levels and goals are described in narrative form, relating to railroad transportation, maritime and river shipping, civil aeronautics, communications and electric power.

Barth, R.
INFLUENCE OF FORM AND FLOW AROUND MOTOR VEHICLES ON THE RESISTANCE, TRACTION AND MAINTENANCE OF DIRECTION OF TRAVEL. [1958] [42]p. 4 refs. Trans. no. 5423.
Order from SLA mi$3.30, ph$7.80 59-10902

Trans. of V[erein] D[eutscher] I[ngenieure. Zeitschrift] (Germany) 1956, v. 98, no. 22, p. 1265-1275.

MATERIALS

OILS FOR HYDRAULIC SYSTEMS. [1959[2p. F-TS-9494/III.
Order from LC or SLA mi$1.80, ph$1.80 59-14120

Trans. of [rept.] Masla Dlya Gidravlicheskikh Sistem from All Union Industrial Exhibition, pub. by Ministerstvo Neftyanoy Promyshlennosti SSR, Moscow, 1956.

WATER-REPELLING SILICON-ORGANIC LIQUIDS. [1959] 3p. F-TS-9495/III.
Order from LC or SLA mi$1.80, ph$1.80 59-14118

Trans. of [pamphlet] Gidrofobiziruyshchiye Kremniyorganicheskiye Zhidkosti, Moscow, 1956.

Hugosson, T.
NEW WAYS OF PREPARING PVC PASTES. [1959] 10p. 1 ref.
Order from SLA mi$1.80, ph$1.80 59-15172

Trans. of Kunststoffe (West Germany) 1956, v. 46, no. 7, p. 341-344.

Ceramics and Refractories

STEKLO I KERAMIKA (USSR) 1958, NO. 9, 1-48 (Glass and Ceramics). [1959] 1v.
SOV-72-58-9-(1-20)/20.
Order from OTS $0.60, $3.50/6 mo. PB 141 068T-7
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

STEKLO I KERAMIKA (USSR) 1958, NO. 10, P. 1-48 (Glass and Ceramics). [1959] [18]p.
SOV-72-58-10-(1-18)/18.
Order from OTS $0.60, $3.50/6 mo. PB 141 068T-8
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Esin, O. A. and Gel'd, P. V.
THE STRUCTURE OF GLASSES AND THE PROPERTIES OF MOLTEN SILICATES. [1958] 14p.
Order from LC or SLA mi$2.40, ph$3.30 59-10975

Trans. of Steklo i Keramika (USSR) 1954 [v. 11] no. 4, p. 4-6.

A review based primarily on Russian sources, which are not cited bibliographically.

Konopicky, I. K.
THEORY OF FIRECLAY PRODUCTS. [1959] [12]p. 10 refs. A.C.S.I.L. Trans. no. 862.
Order from SLA mi$2.40, ph$3.30 59-15014

Trans. of Deutsche Keramische Gesellschaft. Berichte (West Germany) 1955, v. 32 [no. 9] p. p. 257-261.

The theoretical principles underlying fireclay bricks are discussed with reference to the K_2O - Al_2O_3 - SiO_2 diagram. Approximate formulae are given, based on the assumption of equilibrium, for calculating the content of mullite and crystoballite (and hence that of glass) at a given temperature from the K_2O and Al_2O_3 content.

Veselovskiy, S. F.
METHOD OF SEALING GLASSES WITH DIFFERENT COEFFICIENTS OF EXPANSION. [1958] 3p.
Order from LC or SLA mi$1.80, ph$1.80 59-10862

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 5, p. 613-614.

Leather and Textiles

Kirchner, Horst.
THE EFFECT ON THE TECHNOLOGICAL CHARACTERISTICS OF PERLON FILAMENT OF SETTING WITH AND WITHOUT VACUUM. [1959] 9p. 2 refs.
Order from SLA mi$1.80, ph$1.80 59-15269

Trans. of Deutsche Textiltechnik (East Germany) 1959, v. 9 [no. 1] p. 43-44.

An investigation was made of the effect the previous evacuation of the setting vessel has on the technological characteristics in the setting of Perlon filament. It was established that above 125°C considerable damage takes place in setting without vacuum.

Landquist, Nils.
CHEMICAL MODIFICATION OF FABRICS FROM CELLULOSE FIBERS. [1958] 13p. 20 refs.
Order from SLA mi$2.40, ph$3.30 59-10160

Trans. of Svensk Kemisk Tidskrift (Sweden) 1957, v. 69 [no. 10] p. 476-486.

This survey of developments in relation to the chemical modification of cellulose fabrics for improvement of quality is based primarily on American sources published since 1946.

Vinea, E.
CONTRIBUTIONS TO THE THEORY OF PHOTOCHEMICAL DEGRADATION OF SYNTHETIC POLYAMIDE FIBRES (Contributii la Teoria Degradării Fotochimice a Fibrelor Sintetice Poliamidice) tr. by P. Stekl and D. A. Sinclair. [1958] 15p. 9 refs. Technical Trans. 787.
Order from SLA mi$2.40, ph$3.30 59-10242

Trans. of Industria Textila (Rumania) 1957, v. 8, no. 2, p. 64-68.

Qualitative analyses were made on insolated material to demonstrate the presence of peroxide and nitrous groups and previous literature was reviewed to clarify the mechanism of polyamide photodegradation and to interpret the catalytic action of titanium dioxide on polyamide fibres subject to light and weather. The oxidation reaction manifested by the titanium dioxide probably develops according to the following mechanism: the titanium dioxide gives up oxygen to the polyamide molecule, thus being reduced to titanium oxide. The oxygen given up links itself in the form of a peroxide group to the double bond of the amide group. At the same time the titanium oxide becomes reoxidized to dioxide with the aid of the oxygen in the air. Chromation or dyeing with chromated mordant acid dyes appreciably improves the resistance to light of articles made of polyamide fibres. The use of chromatable or premetallized acid dyes is recommended for the dyeing of articles from polyamide fibres which are exposed to the action of light during wear.

Paints and Finishes

Belyayev, G. I. and Smakota, N. F.
THE INFLUENCE OF FERRIC OXIDE ON THE PROPERTIES OF GROUND-COAT ENAMEL WITH AND WITHOUT BORIC OXIDE. [1959] 9p.
Order from ATS $12.70 ATS-61L30R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1958, v. 31, no. 12, p. 1792-1799.

Sorkin, M. and Ernst, W.
THE WASHFASTNESS OF RESIN FINISHES. [1959] 4p.
Order from SLA mi$1.80, ph$1.80 59-15310

Trans. of Textil-Rundschau (Switzerland) 1954, v. 9 [no. 1] p. 23-24.

A method is described for the testing of urea- and melamine-formaldehyde resins, either separately or in mixtures, with reference to their effectiveness in the production of wrinklefree, shrinkfree and embossing effects in fabrics.

Vinogradov, R. P.
IMPREGNATION AND STAINING OF SKIS WITH "PK" (Propitka o Okraska Lyzh Sostavom "PK") tr. by M. Slade. [1958] [5]p. Trans. no. 3977.
Order from LC or SLA mi$1.80, ph$1.80 59-10184

Trans. of Derevoobrabatyvayushchaya Promyshlennost' (USSR) 1957, v. 6, no. 5, p. 19-20.

Photographic Materials

Breydo, I. I.
INCREASING THE SPEED OF PHOTOGRAPHIC MATERIALS BY HYPERSENSITIZATION WITH TRIETHANOLAMINE. [1959] 3p. 1 ref. T-3005.
Order from LC or SLA mi$1.80, ph$1.80 59-15181

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 3, p. 224-225.

Karpova, A. L., Mikhaylova, A. A. and Chibisov, K. V.
THE PHOTOGRAPHIC ACTIVITY OF GELATIN. [1958] 6p. 3 refs. T-2882.
Order from LC or SLA mi$1.80, ph$1.80 59-10894

Trans. of Akademiya Nauk SSSR. Doklady. 1958, v. 121, no. 1, p. 133-135.

Impurities were removed from the gelatin by means of adsorbents and by electrodialysis. Different samples of gelatin acquired similar properties by being transformed into gelatin which acts slowly in the (inert) finishing stage. After such purification only a negligible amount of reducers was determined in gelatin ($\sim 4.0 \times 10^{-7}$ gram-equiv. per gram of gelatin). Electrodialysis also permitted the removal of the active impurities and changes the gelatin into an inert gelatin By using electrodialysis apparatus equipped with five chambers, it was possible to separate impurities in the form of cathodic and anodic fractions. A study of these solutions showed that the compounds in the cathodic fraction do not react irreversibly with silver ions while compounds with labile sulfur, reducers, and complex-forming compounds of the first type are transferred into the anodic fraction. A photographic test showed that the solution of the cathodic fraction possesses fractions retarding the finishing and the solution of the anodic fraction possesses the function of acceleration. Apparently the photographic activity of gelatin during finishing depends upon two of its components: (1) The macrocomponents, that is, the protein part of gelatin possessing protective properties and a certain reducing function and (2) microcomponents, whose role is limited basically to a control of the rate of finishing.

Klein, E.
FORM OF DEVELOPED SILVER (A CONTRIBUTION TO THE ELUCIDATION OF THE MECHANISM OF PHOTOGRAPHIC DEVELOPMENT). [1959] 32p. 35 refs. T-2890.
Order from SLA mi$3.00, ph$6.30 59-15032

Trans. of Zeitschrift fllr Elektrochemie (West Germany) 1958, v. 62, no. 5, p. 505-519.

Romanova, T. A.
HYDROGEN AND DEUTERIUM ADDED TO EMULSION. [1958] 7p. 1 ref. T-2854.
Order from LC or SLA mi$1.80, ph$1.80 59-10791

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1958, no. 2, p. 21-24.

A method is described for adding hydrogen and deuterium to photographic emulsions in the form of a stable hydrogen-containg compound. This permits an increase in the content of hydrogen up to $0.6 \cdot 10^{23}$ nuclei/cc and the introduction of $0.3 \cdot 10^{23}$ deuterium nuclei per cc of dry emulsion.

Samoylovich, D. M. and Pisanko, I. S.
INVESTIGATION OF THE RECORDING PROPERTIES OF R-NIKFI EMULSIONS. [1959] 12p. 4 refs. T-2904.
Order from LC or SLA mi$2.40, ph$3.30 59-15017

Trans. of Pribory i Tekhnika Eksperimenta (USSR) 1956, no. 2, p. 45-49.

The properties of R-NIKFI emulsions released in 1955, were investigated under standard development conditions and the dependence of the recording properties upon the development conditions were studied. It was shown that the density of grains in the relativisitic particle tracks equals 21 to 23 per 100 μ of the particle track in the emulsion if the fog equaled 0.35 - 0.45 grain per 200 μ^3.

Sharlandzhiyev, S. P. and Chel'tsov, V. S.
CHARACTERISTIC INTERPRETATION OF THE REACTIVITY OF NON-DIFFUSING COUPLERS BY THE VALUE OF THE ACTIVATION ENERGY OF THE COLOR DEVELOPMENT PROCESS. [1958] 5p. 4 refs. T-2861.
Order from LC or SLA mi$1.80, ph$1.80 59-10776

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 2, p. 117-119.

Experiments were conducted to determine the activation energy during the first and second phases of color development for a further determination of the existing relationships between the activation energy and the photographic efficiency of couplers. The color development activation energies were determined for non-diffusing couplers used in three-layer color photographic materials with different developers consisting of p-phenylenediamine derivatives. The experiments confirmed the rectilinear dependence of the logarithmic values of the rate of development upon the inverse value of the absolute temperature in agreement with Arrhenius' equation during the color development between 10° and 25° C. The activation energy values obtained for the investigated color couplers corresponded to the degree to which the activity of these couplers can be determined qualitatively by photographic methods.

Shor, M. I. and Ginzburg, K. M.
KINETICS OF FINISHING OF AMMONIACAL SILVER BROMIDE EMULSIONS FOR PHOTOGRAPHIC PAPERS. [1958] 9p. 4 refs. T-2859.
Order from LC or SLA mi$1.80, ph$1.80 59-10773

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 2, p. 96-100.

Concentrations of the stabilizer (diphenyltetrazolodisulfide) and the gelatine used in ammoniacal silver bromide emulsions were varied to determine their effect on the light sensitivity of photographic emulsions. The curves of light sensitivity resulting from each variation were plotted against the classical curve in which the light sensitivity reaches a maximum and then drops in relation to the development of fog. Light sensitivity was prolonged as the amount of stabilizer was increased and as the gelatine content was decreased. The stabilizer inhibited the growth of crystals and the process of finishing. The average size of the grains decreased as the concentrations of the stabilizer increased. An increase in the concentration of the gelatine caused the light sensitivity to drop after reaching its maximum. Results indicate that a small specific surface of the solid phase during finishing produced the classical curve of light sensitivity. A large specific surface of the solid phase during finishing retards finishing,

producing an anomalous curve of light sensitivity which does not drop after finishing, but remains unchanged. By varying the concentrations of the stabilizer and gelatine in photographic emulsions, it is possible to control the light sensitivity and fog in photographic procedures.

Plastics

KP-3 LABORATORY TYPE CONICAL PLASTOMETER. [1959] [3]p. F-TS-9867/III.
Order from LC or SLA mi$1.80, ph$1.80 59-16081

Trans. of pamphlet, Laboratornyy Konicheskiy Plastometr KP-3, Moscow, 1956.

Küch, Wilhelm.
THE EFFECT OF THE MOLDING CONDITIONS ON THE STRUCTURE AND PROPERTIES OF LAMINATED PRODUCTS (Einfluss der Pressbedingungen auf Geschichtete Kunstharz-Pressstoffe). [1959] [20]p. (4 figs. omitted) 14 refs.
Order from SLA mi$2.40, ph$3.30 59-15145

Trans. of V[erein] D[eutscher] I[ngenieure]. Zeitschrift (Germany) 1939, v. 83 [no. 52] p. 1309-1316.

Tests were conducted to determine the effect of the molding pressure and resin content on the static strength, impact bending work and moisture resistance of resins filled with wood, paper and textiles. The materials in the form of plates 200 mm x 40 mm. and 1.5 and 10 mm. thick, were pressed in molds, on an 80-ton press. The most favorable resin content for laminated wood is about 10%. For paper-strip molded material it is 26 to 33%, and for textile strip material it is 33 to 38%. In the case of synthetic resin-laminated wood, higher pressures than 200 kg/cm^2 cause an impairment of the structure. Maximum molding pressures are necessary for the production of the paper strip and textile strip molded material with a low deformation capacity. Advantages may be obtained by bonding laminated wood with urea resin. Laminated materials prepared with polyvinyl chloride (PCU) have a low strength and a high sensitivity to moisture.

Vieweg, R. and Schneider, W.
ABSORPTION OF WATER AND SWELLING OF PLASTICS (Zur Wasseraufnahme und Quellung von Kunstharzen). 2 Dec 48, 11p. 10 refs.
Order from SLA mi$2.40, ph$3.30 59-15228

Trans. of Kunststoffe (Germany) 1941, v. 31, [no. 12] p. 417-421.

Rubber and Elastomers

KAUCHUK I REZINA (USSR) 1958, NO. 8, P. 1-40 (Raw and Vulcanized Rubber). [1959] [15]p. SOV-138-58-8-(1-11)/11.
Order from OTS $0.60, $3.50/6 mo. PB 141 057T-10
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

KAUCHUK I REZINA (USSR) 1958, NO. 11, P. 1-40 (Raw and Vulcanized Rubber). [1959] [20]p. SOV-138-58-11-(1-14)/14.
Order from OTS $0.60, $3.50/6 mo. PB 141 057T-11
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

KAUCHUK I REZINA (USSR) 1958, NO. 12, P. 1-48 (Raw and Vulcanized Rubber). [1959] [21]p. SOV-138-58-12-(1-17)/17.
Order from OTS $0.60, $3.50/6 mo. PB 141 057T-9
Foreign $0.85, $5.00/6 mo.

Consists of abstract in English.

SKT SILICONE RUBBER. [1959] 2p. F-TS-9498/III.
Order from LC or SLA mi$1.80, ph$1.80 59-14117

Trans. of [pamphlet] Silikonovyy Kauchuk SKT, pub. by Ministerstvo Khimicheskoy Promyshlennosti SSSR.

Blokh, G. A. and Yaroshevich, A. G.
ON THE INTERACTION OF CARBON BLACK WITH SULFUR IN THE RUBBER VULCANIZATION PROCESS. [1958] 5p. 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10272

Trans. of *Akad[emiya] Nauk SSSR. Dokl[ady] 1957, v. 116 [no. 1] p. 105-108.

Kinetic data are given on the interaction of carbon blacks (from gas or lamp) with sulfur and accelerators. A chemical interaction takes place between radioactive sulfur and carbon black in the temperature conditions of vulcanizing. Gas carbon black is chemically linked to sulfur to a greater degree than lamp black. Adsorption of rubber molecules from a benzene solution by the surface of carbon black-sulfur mixture, heated for 3 hr at 145°, diminishes, resulting in an insignificantly small variation in the viscosity of the rubber solution. Preliminary heating of carbon black with sulfur and accelerators contributes to an increase in resin solidity.

Bresler, S. E. and Mosevitskiy, M. I.
STUDY OF THE KINETICS OF POLYMERIZATION OF ISOPRENE UNDER THE ACTION OF A COMPLEX CATALYST (Izucheniye Kinetiki Polimerizatsii Izoprena pod Deyastviyem Kompleksnogo Katalizatora). [1959] 7p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15016

Trans. of *Akad[emiya] Nauk [SSSR]. Doklady, 1958, v. 121, no. 5, p. 859-861.

Polymerization of isoprene was studied with formation of polymers soluble in the monomer, saturated hydrocarbons, and benzene. The rate of polymerization was measured calorimetrically by heat evolution.

Marquard, E.
ON TIRE DRAG. [1959] 22p. 16 refs.
Order from SLA mi$2.70, ph$4.80 59-15058

Trans. of Rev[ue] Gén[érale du] Caout[chouc] (France) 1958, v. 35, no. 11, p. 1387-1395.

Wood and Paper

Back, Ernst.
SOME VIEWPOINTS ON THE DETERMINATION OF RESIN IN PULP AND WOOD. [1958] 7p.
Order from SLA mi$1.80, ph$1.80 59-10252

Trans. of special bulletin pub. by Swedish Forest Products Laboratory, Sep 57.

Bølvikan, A. and Giertz, H[abs] W[illiam].
PREPARATION OF SULPHITE PULPS IN HIGH YIELD. [1958] [7]p.
Order from SLA mi$1.80, ph$1.80 59-10292

Trans. of Norsk Skogindustri (Norway) 1956 [v. 10, no. 10] p. 344-348.

Hess, Kurt.
THE EXISTENCE OF DEFINITE HYDRATES IN SODIUM HYDROXIDE LYES OF DIFFERENT CONCENTRATIONS AND THEIR INFLUENCE ON THE FORMATION OF CELLULOSE XANTHATE. [1958] [9]p. 11 refs.
Order from SLA mi$1.80, ph$1.80 59-10127

Trans. of Holzforschung (Germany) 1955, v. 9 [no. 6] p. 167-171.

The different reaction mechanisms, assigned by R. Bartunek (Angew. Chem. 63: 484, 1951, Das Papier 7: 153, 1953; and Kolloid-Z. 133: 125, 1954) to the system CS_2/NaOH/H_2O/cellulose and depending on the state of hydration of NaOH in the lyes used, are critically discussed. Bartunek's solubility tests quoted to support his thesis can easily be explained by the variation of the cellulose xanthate solubility with the NaOH concentration. Bartunek's results are obscured by the fact that under his experimental conditions alkali celluloses were formed which had different crystalline lattices and reacted with CS_2 at different rates.

Kaltenbach, J[osef].
STUDY OF THE DETERMINATION OF THE SIZING EFFECT ACCORDING TO COBB (Bestimmung des Leimungseffektes nach Cobb). Feb 59 [18]p. 3 refs.
Order from SLA mi$2.40, ph$3.30 59-10985

Trans. of Das Papier (West Germany) 1958, v. 12, no. 13/14, p. 342-350.

The Cobb test was found to be more reliable for determining the degree of sizing of paper than the ink streak, or the ink flotation tests, since the color of the paper does not affect its interpretation. The absorptive capacity of paper may vary from roll to roll, as the ash content of the pulp and the beating degree vary; these differences were accurately determined by the test. The method is suitable for testing full and half-sized paper, but is not recommended for slightly sized paper.

Kurth, K[laus].
MODERN WASTE PAPER RECOVERY. Dec 58, 12p. (23 figs. omitted) 1 ref.
Order from SLA mi$2.40, ph$3.30 59-10799

Trans. of Allgem[eine] Papier-Runds[chau] (West Germany) 1958 [v. 6] no. 12, p. 617-620; no. 13, p. 674-678; no. 14, p. 722-726.

The conventional method for the recovery of mixed and sorted waste papers, represented by spherical digester, kollergang, screen and hollander, is supplanted to an increasing extent by a completely continuous method termed "wet recovery". The interaction of the machines installed for this method is illustrated by several examples. The technological and economic results of the conventional and the wet recovery processes are distinguished by numerous factors, which are compared. The wider development of wet recovery led to a recovery method which culminated in the upgrading of waste paper to a pulp with a character like chemical pulp. This new process and its mechanical equipment are discussed.

Lampert, H.
THE GLUING OF SCREEN-FACED HARDBOARD TO SOLID TIMBER (Das Verleimen Siebrauher Hartfaserplatten mit Massivholz). [1959] (4 figs. omitted) 4 refs. Trans. no. 4103.
Order from SLA mi$1.80, ph$1.80 59-15251

Trans. of die Holzindustrie (East Germany) 1957, v. 10, no. 7, p. 229-233.

Tests were conducted to determine the bonding strength of screen-faced hardboard to solid timber; it was found that thick bonds were formed in the valleys while there was a direct bonding occasionally at the hills. This was particularly unfortunate, as the top of these have only a very weak strength. To improve the gluing strength, various extenders were added to the

glue in the ratio of wood-flour 1:33, horse-chestnut-flour 1:8 and bakelite-flour 1:8. The test results prove that a good bonding of hardboard and solid timber is possible as the strength of the glue-joint was always found to be greater than the shear stress of the hardboard.

Philipp, Burkhart.
THE KINETICS OF THE XANTHOGENATION OF CELLULOSE. PT. III. ALKALI CELLULOSE AND MIXTURES OF CS_2 AND COS. [1958] 13p. 10 refs.
Order from SLA mi$2.40, ph$3.30 59-10168

Trans. of Faserforschung und Textiltechnik (Germany) 1957, v. 8 [no. 3] p. 91-98.

Stemsrud, Finn.
ON THE FIBRE STRUCTURE OF SPRUCE, FIR AND PINE. [1958] [16]p. 45 refs. (31 figs. omitted).
Order from SLA mi$2.40, ph$3.30 59-10293

Trans. of Norsk Skogindustri (Norway) 1956, v. 10, [no. 4] p. 123-136.

Tatishvili, E. M.
CONNECTION BETWEEN PHYSICO-MECHANICAL PROPERTIES AND CHARACTERISTICS OF ANATOMICAL STRUCTURE OF WOOD (Svyaz Mezhdu Fiziko-mekhanicheskimi Svoistvami i Osobennostyami Anatomicheskogo Stroyeniya Drevesiny) tr. by M. Slade. [1958] 4p. 3 refs. Trans. no. 4035.
Order from LC or SLA mi$1.80, ph$1.80 59-10197

Trans. of Akad[emiya] Nauk Armyanskoy SSR, Yerevan. Izvestiya. Biol[ogicheskiye] i Sel'sko[khozyaystvennyye] Nauki, 1957, v. 10, no. 3, p. 85-88.

Direct comparisons are made of certain fundamental physico-mechanical properties (weight by volume, volumetric shrinkage, compression with the grain, and hardness) and the percentage of solid wood for 11 eucalyptus species that grow on the Black Sea shores in Georgia.

Treiber, E., Stenius, A. S., and Rehnström, J.
THE EFFECT OF FINES IN DISSOLVING PULPS. PART I. [1958] [13]p. 51 refs.
Order from SLA mi$2.40, ph$3.30 59-10163

Trans. of Svensk Pappers-Tidning (Sweden) 1958, [v. 61] no. 3, p. 55-[60].

Tyuganova, M. A. and Rogovin, Z. A.
A STUDY OF THE PROPERTIES OF CELLULOSE ESTERS OF MONOTHIOCARBONIC ACID. Communication no. 67 on Research on the Constitution and Properties of Cellulose and its Esters. [1958] 4p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-10328

Trans. of Khim[icheskaya] Nauka i Prom[yshlennost'] (USSR) 1957, v. 2, p. 265-266.

Wehrung, A.
SPINNING BATH AND FILAMENT STRUCTURE IN THE VISCOSE PROCESS. [1958] 10p. [biblio omitted].
Order from SLA mi$1.80, ph$1.80 59-10220

Trans. of Reyon, Zellwolle und Andere Chemiefasern (Germany) 1952, v. 30 [no. 10] p. 524-[530].

Topics discussed in this review include the effect of acid, acid concentration and salt solubility, and the composition of a few known spin baths.

MATHEMATICS

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. MATEMATIKA (USSR) 1958, NO. 4, P. 3-278 (News of Institutes of Higher Learning, Mathematics). [1959] 1v. SOV-140-58-4-(1-30)/30.
Order from OTS $0.70, $4.00/year PB 141 032T-3
Foreign $0.95, $5.50/year

Consists of abstracts in English.

Gel'fand, I. M.
ON THE STRUCTURE OF A RING OF RAPIDLY DECREASING FUNCTIONS ON A LIE GROUP, tr. by Morris D. Friedman. 26 Mar 59, 5p. 4 refs. TG-42.
Order from LC or SLA mi$1.80, ph$1.80 59-14685

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 124, no. 1, p. 19-21.

The structure of a ring of infinitely differentiable rapidly decreasing functions is studied for a group of complex 2 x 2 matrices with determinant 1.

Kolmogorov, A. N.
ON THE LINEAR DIMENSION OF TOPOLOGICAL VECTOR SPACES, tr. by Morris D. Friedman. 14 Aug 58, 6p. 5 refs. QD-3272.
Order from LC or SLA mi$1.80, ph$1.80 59-10394

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1958, v. 120, no. 2, p. 239-241.

MECHANICS

Akhiyezer, A. I. and Pargamanik, L. E.
FREE OSCILLATIONS OF AN ELECTRON PLASMA IN A MAGNETIC FIELD (Svobodnye Kolebaniya Elektronnoy Plasmy v Magnitnom Pole) tr. by David Franklin. [1958] 38p. 3 refs.
Order from OTS $1.25 AEC-tr-3492

Trans. of Kharkov U. [Ucheni Zapysky] (USSR) 1948, v. 25, p. 75-104.

Free oscillations of an electron plasma in a constant homogeneous magnetic field were investigated. The oscillations were associated with long longitudinal electromagnetic waves for which $ak \ll 1$, where a is the Debye-Huckel radius, and k is the wave vector. Fundamental equations, integration of the fundamental equation, and methods of obtaining the dispersion equation are included. The Langmuir frequency of the free oscillations is described as split into two parts, increasing as the magnetic field increases, and depending on the magnitude and angle of the field. Two waves with different frequencies can be propagated in the plasma in each direction. In strong magnetic fields the dispersion and damping of the oscillations depends on the magnitudes and directions of the magnetic field, and they are different for the fundamental waves and the additional waves. The oscillations are propagated at right angles to the magnetic field, the additional oscillation is propagated along the field, and they are non-damping. In weak magnetic fields, the dispersion and damping of the oscillations are the same as in the absence of a magnetic field.

Kornfeld, M.
MEASUREMENT OF THE SHEAR MODULUS OF SOLID AND LIQUID BODIES (Izmereniye Modulya Slviga Tverlykh i Zhidkikh Tel). [1958] [10]p. 8 refs. Tr57-125.
Order from LC or SLA mi$1.80, ph$1.80 59-10778

Trans. of [Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki] (USSR) 1943, v. 13, p. 116-120.

Methods are described which were previously used by the author (Doklady Akad. Nauk SSSR 36: 58, 1942, and 38: , 1943) in studies of the dependence of the elastic properties of amorphous bodies on the deformation frequency and on the temperature. The methods are modifications of those of J. Stefan (Wiener Berichte 57: 697, 1868).

Kunin, N. F. and Lomakin, G. D.
ON THE RELATION BETWEEN STATIC AND KINETIC FRICTION. [1958] 9p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10863

Trans. of Zhurnal Tekhnicheskoy Fiziki (USSR) 1954, v. 24, no. 8, p. 1367-1370.

The phenomenon of the jump during transition from static to kinetic friction is investigated. It is shown that the jump is dependent on the increase of the real contact area in the separate microcontacts, the ordering of microslips and the processes of hardening and relaxation of the metal. The relation between the coefficients of static and kinetic friction is determined. The effect of ordering of microslips during transition from static to kinetic friction is verified experimentally.

Lücke, K. and Lange, H.
ON THE SHAPE OF THE PLASTIC STRESS-STRAIN CURVE OF VERY PURE ALUMINUM CRYSTALS AND THE DEVELOPMENT OF DEFORMATION BANDS. [1959] 38p. 36 refs.
Order from SLA mi$3.00, ph$6.30 59-10947

Trans. of Zeitschrift für Metallkunde (Germany) 1952, v. 42, no. 2, p. 55-66.

Elongation tests were made on aluminum single crystals of a purity of 99.5% and 99.99%. These shear stress-slippage curves had parabolic shape for the more impure material and were dependent on the orientation in a high degree. For very pure aluminum, the curves at first were flat on a length dependent on the orientation then they sloped for increased slippage. In limit cases of the orientation, either the flat portion ([100] [111]) or the slope ([110]) was missing. A critical survey of the literature revealed that, there is no reason why a linear hardening law should be assigned to the hexagonal crystals and a parabolic hardening law to the cubic face-centered crystals. Most of the shear stress-slippage curves of cubic face-centered metals given in the literature exhibit a cusp. Some of the earlier results can be explained by the work hardening stress-strain curves as a function of the orientation. Microscopic examination of the deformed pure aluminum single crystals exhibited a parallel striation which could not be interpreted as a system of lines of slip on account of its orientation which was undetermined crystallographically. X-ray examinations showed that deformation bands are involved.

Silin, M. O. [Kobernik, S. G. and Asayulenko, L A.]
HEAD-WATER LOSSES DURING MOTION OF WATER AND WATER-SOLID MIXTURE IN LARGE DIAMETER CONDUITS. [1958] 8p. 5 refs. (includes foreign text).
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3423

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1958, no. 2, p. 175-177.

Results are tabulated of a field research operation to determine head-water losses during the motion of water and water-solid mixture in conduits having diameters of 900, 800 and 600 mm respectively. The head-water loss curves are given as a function of the velocity, the diameter of the conduits, and the specific wt of the water-solid mixture. Calculations are not in agreement with those of F. A. Shevelev: the decrease in head-water losses is explained by the decrease in roughness of the inner surface of the conduits as a result of friction of the hard soil particles passing through. It is suggested therefore that steel conduits should be considered in a special category, grouped according to their roughness.

Volynskiy, M. S.
ON THE BREAK-UP OF DROPLETS IN AN AIR STREAM. [1959] 5p. (2 figs. omitted) 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15446

Trans. of Akad[emiya] Nauk. SSSR. Doklady, 1948, v. 62 [no. 3] p. 301-304.

METALLURGY

KOKS I KHIMIYA (USSR) 1958, NO. 12, P. 3-57 (Coke and Chemistry). [1959] [20]p. SOV-68-58-12-(1-25)/25.
Order from OTS $0.50, $3.00/6 mo. PB 141 063T-10
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

*METALLURG (USSR) 1959, NO. 1, P. 1-41 (Metallurgist). [1959] [21]p. SOV-130-59-1-(1-21)/21.
Order from OTS $0.60, $3.50/6 mo. PB 141 132T-11
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

METALLURGIST, 1958, NO. 6. 1959, 1v.
Order from CB $12.50, $95.00/year

Trans. of Metallurg (USSR) 1958, no. 6, p. 1-[38].

METALLURGIST, 1958, NO. 7. 1959, 1v.
Order from CB $12.50, $95.00/year

Trans. of Metallurg (USSR) 1958, no. 7, p. 1-[48].

*ZAVODSKAYA LABORATORIYA (USSR) 1958, V. 24, NO. 10, P. 1171-1296 (Plant Laboratory). [1959] 1v. SOV-32-24-10-(1-70)/70.
Order from OTS $1.00, $5.50/6 mo. PB 141 027T-12
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

Chokin, Sh. [Ch.]
RESULTS OF THE SCIENTIFIC ACTIVITY OF THE KAZAKH ACADEMY OF SCIENCES DURING 1957. 26 Nov 58, 3p. JPRS/DC-L-1160.
Order from OTS $0.50 59-11338

Trans. of Akademiya Nauk Kazakhskoy SSR, Alma-Ata. Vestnik, 1958 [v. 14] no. 6, p. 6-9.

The research activities of the various institutes that comprise the Kazakh Academy of Sciences are discussed. The Institute of Geological Sciences concentrated its work on the development of scientific fundamentals of metallogenesis. A number of rare and nonferrous metals occurrences were uncovered. Considerable data on the regularity of titanium ores in the South Eastern part of the Turgey depression were obtained. The Institute of Mining introduced at Dzhezhasgan a method which reduced the coarseness of ore and increased the yield of ore from 1 running meter of blast holes. It developed a multi-percussion perforator which increased the speed of drilling by 2 to 2.5 times. The investigations of the Institute of Metallurgy and Concentration in the selection of optimum compositions of charges for reverberatory furnaces increased productivity 15 to 20%. Laboratory experiments at the Institute of Chemistry on improvement of cyclone smelting of copper-polymetallic concentrates and zinc cakes made the furnace yield 35 times more productive than a tubular Weltz furnace. The Altay Mining-Metallurgical Institute studied the possible extent of polymetallic raw material reserves of the Bergozonsk-Belovsovka field.

Ferguson, E[ric] T[apley].
ORIENTED SUPERSTRUCTURES IN ALLOYS OF Fe-N. [1958] 4p. 8 refs.
Order from SLA mi$1.80, ph$1.80 59-10949

Trans. of Academie des Sciences [Paris]. Comptes Rendus, 1957, v. 244 [no. 19] p. 2363-2366.

The uniaxial anisotropy induced in iron-nickel alloys by annealing in a magnetic field was determined as a function of the composition of the alloy, the temperature and the duration of the annealing.

Heumann, Th. and Röschenbleck, B.
REST POTENTIAL AND CATHODIC POLARIZATION OF ACTIVE CHROMIUM AND A CHROMIUM-IRON ALLOY IN SULFURIC ACID. [1959] 14p.
Order from ATS $12.00 ATS-25L30G

Trans. of Werkstoffe u[nd] Korrosion (West Germany) 1958, v. 9, no. 6, p. 383-391.

Jolibois, Pierre and Fleureau, Bernard.
MINERAL CHEMISTRY: ON OBTAINING POWDERED ALLOYS OF CHROMIUM AND MANGANESE. [1958] 3p. 7 refs.
Order from SLA mi$1.80, ph$1.80 59-10764

Trans. of [Academie des Sciences, Paris]. Compt[es] Rend[us] 1951, v. 232, p. 1272-1274.

Nagirnyak, F. I.
LARGE SCALE LABORATORY TESTS ON BULK SELECTIVE FLOTATION OF ORE FROM DEGTYARKA DEPOSIT. 26 Nov 58, 2p. JPRS/DC-L-1154.
Order from OTS $0.50 59-11331

Trans. of Tsvetnyye Metally (USSR) 1958 [v. 31] no. 6, p. 57-61.

Reinacher, Gerhard.
THE EVOLUTION AND POTENTIALITIES OF THE HIGH TEMPERATURE METALLURGICAL MICROSCOPE. (Entwicklung und Ergebnisse der

Hochtemperatur-Metallmikroskopie). [1959] [24]p. 33 refs. (foreign text included).
Order from SLA mi$2.70, ph$4.80 59-15048

Trans. of Zeits[chrift] für Metallkunde (Germany) 1954, v. 45 [no. 7] p. 453-458.

The development of the high temperature metallurgical microscope since its early inception in 1909 is described. Recently, in Germany, the E. Leitz company has brought out a new vacuum hot-stage for use with vertical microscopes, which makes it possible to observe and photograph melting processes which take place in grain boundaries and which are mainly eutectic in nature.

Ferrous Metals

STAL' (USSR) 1958 [V. 18] NO. 12, P. 1057-1144 (Steel). [1959] [21]p. SOV-133-58-12-(1-19)/19.
Order from OTS $0.70, $4.00/6 mo. PB 141 136T-10
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Khlebnikov, V. B. and Titkov, N. P.
FERROUS METALLURGY. 25 Feb 59, 21p. 2 refs. JPRS: L-650-N.
Order from OTS $0.75 59-13214

Trans. of Gornyy Zhurnal (USSR) 1958, no. 11, p. 3-6, 7-15.

Contents:
A firm raw materials base, by V. B. Khlebnikov
General direction of development of concentration of ore of ferrous metals, by N. P. Titkov

Vitman, F. F., Davidenkov, N. N., and Zlatin, N. A.
THE COLD-BRITTLENESS OF STEEL IN TORSION, tr. by A. Behr. [1958] 12p. (3 figs. omitted) 11 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10815

Trans. of [Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki] (USSR) 1940, v. 10, no. 9/10, p. 1137-1145.

Using a specially constructed impact torsion machine it has been shown that a change-over from uni-axial tension to pure shear involves an appreciable lowering of the critical cold-brittleness temperature owing to a change in the ratio of the normal and shearing stresses.

Light Metals

Birett, W.
"ELOXAL": A NEW MATERIAL. [1959] 5p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-15443

Trans. of Siemens Zeitschrift (Germany) 1936, [v. 16] no. 1, p. 1-4.

The properties of electrolytically oxidized aluminum are described.

Calvet, Jean.
THE INFLUENCE OF THE PURITY OF ALUMINUM ON THE VARIATION OF ITS MECHANICAL PROPERTIES WITH ROLLING AND ANNEALING. [1958] 2p. [6 figs. 4 tables omitted] 2 refs.
Order from SLA mi$1.80, ph$1.80 59-10650

Trans. of Revue de Métallurgie (France) 1931, v. 28, no. 3, p. 162-164.

Kofstad, Per and Hauffe, Karl.
OXIDATION OF TITANIUM. [1958] 19p. (Bibliography omitted).
Order from SLA mi$2.40, ph$3.30 AEC-tr-3215

Trans. of Werkstoffe und Korrosion (West Germany) 1956, v. 7, no. 11 [p. 642-649].

A critical survey is presented of previous investigations on the kinetics of oxidation and the formation of oxide layers on titanium. A new explanation of the cubical time law observed in titanium oxidation is offered on the basis of the high oxygen solubility of titanium, by means of the diffusion of oxygen through the outer titanium layer that is enriched with oxygen. The proposed mechanism divides the entire reaction process into partial processes as follows: (1) chemical sorption of the oxygen, (2) entrance of the chemically absorbed oxygen into the metal lattice, and (3) diffusion of oxygen in the titanium. The first two partial processes are assumed to take place sufficiently rapidly that diffusion is the step that determines the rate. Oxygen diffusion in titanium is dependent upon concentration, thus probably explaining the appearance of two different time laws during the attack of oxygen on titanium. The parabolic time law appears to hold so long as ideal diffusion conditions prevail (D = constant; independent of concentration). When diffusion becomes dependent on oxygen concentration, the cubical time law becomes effective. New calculations of the energies of activation of the oxidation, made in light of the cubical and parabolic time laws, were 38 or 44 kcal/mol.

Nonferrous (except light) Metals

TSVETNYYE METALLY (USSR) 1958 [V. 31] NO. 12, P. 1-103 (Nonferrous Metals). [1959] 1v. SOV-136-58-12-(1-22)/22.
Order from OTS $0.60, $3.50/6 mo. PB 141 139T-12
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Garre, B. and Müller, A.
STUDIES OF LEAD ALLOYS. [1959] 7p. (23 figs. and 1 table omitted) 2 refs.
Order from SLA mi$1.80, ph$1.80 59-15444

Trans. of Z[eitschrift für] Anorg[anische] Chem[ie] (Germany) 1931, v. 198, p. 297-309.

Michal, Jan, Pavlikova, Eva, and Zyka, Jaroslav.
DETERMINATION OF SILVER IN ORES. [1959] 5p. 3 refs. T-2895.
Order from SLA mi$1.80, ph$1.80 59-15034

Trans. of Zeit[schrift für] Analyt[ische] Chem[ie] (West Germany) v. 160, no. 4, p. 277-279.

A photometric method is described for the determination of silver in ores. The method is based on the principle according to which the intensely yellowish brown copper complex is decolorized with tetraethylthiuram disulfide by the reaction of silver ions. The method is very fast, simple and accurate. It can be substituted successfully for the standard assay method. Entirely satisfactory results were obtained for a large number of ore samples.

Portevin, M.
THE ROLE OF OXIDIZING AGENTS IN FOUNDING COPPER AND THEIR USE. [1959] 4p. (1 fig. omitted) 1 ref.
Order from SLA mi$1.80, ph$1.80 59-15198

Trans. of Revue de Métallurgie (France) 1913 [v. 10] p. 944-947.

Structural Metallurgy and Corrosion

Alekseyev, N. V. and Gerasimov, Ya. I.
ON THE STRUCTURE OF MOLTEN BISMUTH-TIN ALLOYS [Issledovaniye Struktury Zhidkikh Splavov Bi-Sn]. [1958] 6p. 10 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3516

Trans. of A[kademiya] N[auk SSSR]. D[oklady] 1958, v. 121, p. 488-[491].

The structure of the liquid alloys and the connection between the structure of the alloy and its properties were experimentally investigated. An equation is given for the calculation of the curve of the radial distribution (for the case where the liquid consists of several kinds of atoms). The system Bi-Sn was investigated by means of the electron diffraction instrument EM-4 which was adapted to experiments at high temperatures. The best results were obtained when the film of the free metal was fastened by very thin quartz layers. The positions of the diffraction maxima are tabulated. For Sn, the position of the maxima agrees well with the data found by other authors. The structure of liquid Bi depends in a high degree on temperature. For the intensity curves of the intermediary alloys there was a gradual transition from the type of pure Sn to the type of pure Bi without any additional maxima. The values obtained for normalized intensity were used for the calculation of the radial distribution function. The integrals were calculated by means of an electronic computer. The curves of radial distribution are given. For alloys of eutectic composition the first maximum of the radial distribution is the result of the superposition of 3 maxima. The place of the first maximum corresponds well with the least distance between the atoms in liquid Sn (3, 25 to 3, 35 Å). According to the calculations, 7, 8 Sn atoms are located at a distance of 3, 35 A around a given Sn atom. Moreover, 2, 1 Bi atoms are located at a distance of 3, 85 Å. But if Bi is located in the center of the coordination sphere, 2 Sn atoms ($r = 3, 85$ Å) and 5, 2 Bi atoms ($r = 4, 15$ Å) are arranged around this Bi atom. These results imply a tendency towards microheterogeneity. For alloys of a composition which is between eutectic composition and the pure components, the maxima are not resolved into their components and their position does not coincide with the position of the maxima of the pure components. These phenomena may be caused by the total miscibility of the components.

Bokshteyn, S. Z., Gudkova, T. I. and others.
ON THE INFLUENCE OF IRREVERSIBLE STRUCTURAL CHANGES ARISING DURING PLASTIC DEFORMATION ON THE DIFFUSIONAL MOBILITY [O Vliyanii Neobratimykh Strukturnykh Izmeneniy, Voznikayushchikh pri Plasticheskoy Deformatsii, na Diffuzionnuyu Podvizhnost']. [1958] [6]p. 10 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3518

Trans. of A[kademiya] N[auk SSSR]. D[oklady] 1958, v. 121, p. 1015-[1018].

The influence of preliminary high temperature plastic deformation on volume and grain boundary diffusion of tin in nickel was studied. Flat samples were subjected to a tensile stress $\sigma = 6$ kg/mm^2 at 700°C for 5, 25, 50, and 60 hr (ruptured) respectively. The strains ranged from 4.7 to 15.6%. After deformation, a disc shaped sample was cut out of the worked part of the sample, electrolytically plated with tin, and given a diffusion anneal for 135 hr at 800°C. The volume and grain boundary diffusion coefficients were determined separately from autoradiographs of taper sections. The simple and inaccurate calculation which assumes that volume and grain boundary diffusion are independent (Akademiya Nauk SSSR Doklady 102: 73, 1955) were used. The results indicated that preliminary deformation increases significantly both the volume and grain boundary diffusion rates of tin in nickel. The latter stages of preliminary plastic deformation affect volume diffusion far more than they do grain boundary diffusion. At small deformations the effects on volume and grain boundary diffusion are roughly the same. Extrapolation of the curves indicated that at very small deformations the effect on grain boundary diffusion is greater than on volume diffusion. Analysis of the autoradiographs showed that grain boundary diffusion predominated in all cases. The influence of the grain boundaries on the diffusion rate decreases with increasing preliminary plastic deformation. After 15.6% preliminary deformation the film was not much blacker at the grain boundaries than in the grains, while after a 4.7% deformation the difference was quite large and the autoradiograph differed but little from that taken from the undeformed metal. These results are explained by assuming that the high temperature plastic deformation causes substantial

changes in the microstructure of the alloy. These changes are either irreversible or require significantly higher temperatures for reversal.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

Ershov, N. N., Semenov, Y. V., and Cherny, A. I.
RUSSIAN-ENGLISH DICTIONARY OF NUCLEAR PHYSICS AND ENGINEERING. 1956, 350p.
Order from ATS $9.00

This dictionary covers not only the terminology of nuclear physics and engineering, but many related disciplines wherever nuclear phenomena and their effects are involved, e.g., chemistry, biology, medicine, geology, electronics, mathematics, etc. It is intended for physicists, chemists, engineers, biologists, librarians, geologists and translators.

Zavoyskiy, E. K., Smolkin, G. E. and others.
THE LUMINESCENT CHAMBER. [1959] 3p. 2 refs.
Order from CCT $5.00 CCT-1249TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 100, no. 2, p. 241-242].

In 1952, the idea of photographing the tracks of ionizing particles in luminescent materials by means of sufficiently sensitive electron-optical image-converters (EIC) was first experimentally realized. This method of detecting ionizing particles, which we have called the luminescent chamber, has excellent resolving time capabilities. Certain questions connected with the chamber are discussed briefly and photographs of stars which were produced by the action of fast neutrons in thallium-activated cesium-iodide crystals are shown. The possibility of investigating light phenomena which occur in a time of the order of 10^{-12} to 10^{-14} sec is also considered.

Elementary Particles

Bogachev, N. P. and Vzorov, I. K.
THE ELASTIC SCATTERING OF PROTONS BY PROTONS. [1959] 3p. 11 refs.
Order from CCT $5.00 CCT-1242TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 99, no. 6, p. 931-933].

Measured differential cross sections are plotted for (p,p) scattering of 657-Mev protons produced by the synchrocyclotron of the Institute for Nuclear Problems of the Academy of Sciences of the USSR.

Bogachev, N. P., Bunyatov, S. A. and others.
EMISSION OF Λ^0-PARTICLES DURING CAPTURE OF K-MESONS BY NUCLEI IN PHOTOEMULSION. [1958] 8p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3462

Trans. of mono. Ob'yedinennyy Institut Yadernykh Issledovaniy [sic] Moscow, 1957, p. 1-7.

An attempt was made to establish the correlation between the parental event and decay of Λ^0 particles in a photoemulsion irradiated by K^- mesons. Data was obtained by scanning emulsion layers at 225 x-magnification. The scanning of possible parental stars was carried out within cones, the axis coinciding with the directions of flight of any propective Λ^0 particle and the half angles of the span being 5^0. The volume of the cones was determined depending on the distance from the intersection point of their axis with the boundaries of the scanned region of the emulsion. Results indicated that correlation between the decay of Λ^0 particles and the parental events is possible. In another part of the stack, a precise identification of the decay of Λ^0 particles with the successive scanning of the parental events was carried out. There were 18 Λ^0 particles disclosed, and in 13 cases the parental event was also disclosed. The results of the measurements are tabulated. One spurious parental event was found during the investigation.

Dzhelepov, V. P. and Kazarinov, Yu. M.
THE ELASTIC SCATTERING OF NEUTRONS WITH ENERGY OF 380 Mev BY PROTONS. [1959] 3p. 7 refs.
Order from CCT $5.00 CCT-1243TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 99, no. 6, p. 939-942].

This document is based on the results of work performed in 1951 and described earlier in reports of the Institute for Nuclear Problems, Acad. Sci. USSR for June 1951 and March 1954.

Dzhelepov, V. P., Golovin, B. M., and Satarov, V. I.
THE ELASTIC SCATTERING OF NEUTRONS BY NEUTRONS AT AN ENERGY OF 300 Mev. [1959] 4p. 11 refs.
Order from CCT $5.00 CCT-1244TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 99, no. 6, p. 943-946].

See U.S. Atomic Energy Comm. Nuclear Sci. Abstr. 9-2932 for abstract of the original.

Dzhelepov, V. P., Kazarinov, Yu. M., and Flyagin, V. B.
EXCHANGE SCATTERING OF NEUTRONS WITH AN ENERGY OF 380 Mev BY DEUTERONS AND THE SPIN DEPENDENCE OF EXCHANGE FORCES. [1959] 3p. 7 refs.
Order from CCT $5.00 CCT-1250TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 100, no. 4, p. 655-658].

This paper is based on work performed in April 1952 and described earlier in reports of the Institute of Nuclear Problems, Acad. Sci. USSR.

Gremmelmaier, R. and Welker, H.
DETECTION OF NEUTRONS WITH AN INDIUM PHOSPHIDE p-n ELEMENT. [1958] [7]p. 8 refs. A. C. S. I. L. Trans. no. 939.
Order from SLA mi$1. 80, ph$1. 80 59-10000

Trans. of Zeitschrift fur Naturforschung (West Germany) 1956, v. 11a [no. 5] p. 420-422.

A method of detecting neutrons with an InP p-n element was developed. The indium has a large effective cross section relative to thermal neutrons, and the effective cross section of the phosphorus is negligibly small by comparison. The InP p-n cell is radiated with slow neutrons, and the voltage generated by the cell during and after radiation is measured. The slow neutrons cause nuclear transmutations in the p-n cell that result in the emission of ionizing particles, or quanta, which create hole-electron pairs that generate a temporary increase in the conductivity of the cell. If no external voltage is applied to the p-n cell, it works as a radiation cell and generates a voltage and current that can be used to detect neutron radiation. The voltages generated by the cells are simplified and recorded with pen recorders. The measured voltage is due to neutron radiation, and the voltage measured across the p-n cell at the moment radiation ceased is a measure of the neutron flux.

Kartuzhanskiy, A. L.
SOME NEW DATA ON THE NATURE OF PHOTOGRAPHIC SENSITIVITY TO IONIZED PARTICLES. [1959] 10p. 15 refs. T-2857
Order from LC or SLA mi$1. 80, ph$1. 80 59-15028

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 2, p. 81-87.

Experiments were made to determine the nature of the photographic sensitivity to particles and the causes of the disagreement between the sensitivities to particles and light. Results indicate that the same number of Ag atoms, not more than 10, are required for transforming sensitivity centers into development centers in emulsion grains with high light sensitivity and emulsion grains with high sensitivity to ionizing particles, in spite of their low sensitivity to light. Surface sensitivity centers, which are capable of being transformed into development centers with a minimum addition of photolytic Ag, are equally effective in relation to the effect of light and the action of ionizing particles; that is, photolytic silver is concentrated on them, regardless of the nature of radiation causing its formation. The concentration of F-centers is small in emulsion grains of all nuclear emulsions including those having the highest sensitivity to ionizing particles. The presence of F-centers in emulsion grains either has no effect on their sensitivity to ionizing particles or causes a certain drop in sensitivity, which is possibly related to the electron acceptor function of F-centers. The dimensions of surface sensitivity centers are the only determining factors for the sensitivity to ionizing particles. The disparity between the sensitivity of nuclear emulsions to ionizing particles and their sensitivity to light is related to differences in the primary act of the absorption of the energy of particles and light because the centers of the absorption of energy differ in these two cases. It is not related to subsequent stages of the formation of the latent image. These stages are identical in both cases.

Tyapkin, A. A., Kozodayev, M. S., and Prokoshkin, Yu. D.
PRODUCTION OF π^0-MESONS BY PROTONS WITH ENERGIES OF 670 Mev. [1959] 3p. 5 refs.
Order from CCT $5. 00 CCT-1254TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 100, no. 4, p. 689-690].

Cross sections were measured at 670 Mev for the production of π^0 mesons in simple (p, p) collision events and in proton collisions on the nuclei of D, Li, Be, B, C, Al, Cu, Cd, Sn, and Pb. The cross sections were determined at 0° and 180° from the direction of the proton beam by measuring the γ-photon flux which was produced in the neutral pion decay. The γ-photons were generated in an internal accelerator target and detected in a counter telescope. The mean γ-photon energies were 125 ± 5 and 80 ± 5 Mev at 0° and 180°, respectively. Dependence of γ-photon yields on the atomic weight of the element agreed satisfactorily with an $A^{2/3}$ law at 180°, but at 0° the γ-photon was suppressed for heavy elements. When only the "hard" γ-photon was recorded, no essential difference was found in the spectra of light and heavy elements. The cross section for the production of γ-photons at 0° in hydrogen as compared to the same cross section in carbon was 0.18 ± 0.01. The value of the relative cross section at 180° was 0.093 ± 0.008. The ratio of γ-photon yields at 0° and 180° for carbon ($\eta_C = 5.8 \pm 0.1$) indicates that η is smaller in light nuclei than in collisions of free protons. The differential cross section for γ-photon production at 0° (or 180°) in the c m system in (p, p) collisions was

$$\left(\frac{d\sigma_{\gamma pD}}{d\omega}\right)_{0^\circ} = (0.59 \pm 0.13)10^{-27} \text{ sq cm/sterad.}$$

The π^0-meson production cross section in the 480- to 670-Mev interval is concluded to vary as $p^{4.5 \pm 0.5}$, where p is the momentum of the neutral pion in the c m system.

Yamzin, I. I. and Pinsker, Z. G.
EXPERIMENTAL CONFIRMATION OF THE THEORY OF ELASTIC SCATTERING OF HIGH-SPEED ELECTRONS, tr. by Morris D. Friedman. 14 Oct 58, 7p. 5 refs. T-134; A-234.
Order from LC or SLA mi$1. 80, ph$1. 80 59-10312

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1949, v. 65, no. 5, p. 645-648.

Nuclear Reactions

Lavrukhina, A. A.
PRESENT STATUS OF NUCLEAR CHEMISTRY. [24 Apr 59] 52p. 376 refs.
Order from RIS $85. 00 ($72. 25 to institutions and their libraries) RIS R-756

Trans. of Uspekhi Khimii (USSR) 1958, v. 27, no. 5, p. 517-550.

Most of the items in the bibliography were published after 1949.

Lindholm, Einar
IONIZATION AND DECOMPOSITION OF MOLECULES BY COLLISIONS WITH ATOM-IONS (Ionisierung und Zerfall von Molekulen durch Stösse mit Atomionen). [1959] 22p. 62 refs. Tr57-111.
Order from SLA mi$2.70, ph$4.80 59-10574

Trans. of Z[eitschrift für] Naturforsch[ung] (West Germany) 1954, v. 9a [no. 6] p. 535-546.

Frequencies of metastable ion conditions of gases were investigated by studying collisions between atom-ions and several molecules. For most atom-ions, all the deep-seated metastable conditions had large frequencies. A study of the higher ionization potentials (IP) of the molecules was also undertaken.

Sauter, F. and Wüster, H. O.
THE EMISSION OF PHOTOELECTRONS FROM THE K-SHELL IN THE DIRECTION OF THE INCOMING γ-RADIATION. [1958] 6p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-10417

Trans. of Zeitschrift für Physik (Germany) 1955, v. 141 [nos. 1-2] p. 83-86.

The quantum mechanical formula was re-examined to explain the photoelectron emission from the K shell in the direction of primary radiation observed by A. Hedgran and S. Hultberg (Phys. Rev. 94: 498, 1954 and Arkiv Fysik 9: 245, 1955). The re-calculation of the direction of primary radiation showed a finite intensity, which is in contrast to previous calculations (Ann. Physik [5]9: 217, 1931 and 11: 454, 1931).

Thirion, Jacques.
ANGULAR DISTRIBUTION OF THE DISINTEGRATION PROTONS OF BORON BY DEUTERONS AND STUDY OF THE PROTON GAMMA RAYS AND ALPHA GAMMA RAYS COINCIDENCE IN THE DISINTEGRATION OF BORON BY DEUTERONS (Distribution Angulaire des Protons de Disintégration du Bore par les Deutons et Étude de Coincidence Protons-Rayons Gammas et Alpha-Rayons dans la Disintégration du Bore par les Deutons) tr. by Charles S. Oldfield. 8 Jan 59 [4]p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-10333

Trans. of [Academie des Sciences, Paris] Comptes Rendus, 1949, v. 229, pt. 2 [no. 20] p. 1007-1009.

Radioactivity

Gerlach, W[alther].
INVESTIGATIONS INTO RADIOACTIVE RAIN. [1958] [16]p. A. C. S. L L. Trans. no. 955.
Order from SLA mi$2.40, ph$3.30 59-10215

Trans. of Atomkernenergie (West Germany) 1956 [v. 1] no. 7/8 [p. 237-244].

Radioactive rainfall observed from April 1955 through July 1956 (in the vicinity of Munich?) is described. Results are tabulated with reference to explosion date of atomic bombs. Maximal permissible activity for drinking water is given, together with a table showing coversion into level of rainfall.

Rosenblum, Salomon, Valadares and others.
FINE STRUCTURE OF MAGNETIC α SPECTRUM OF THORIUM X (Structure Fine du Spectre Magnétique Alpha du Thorium X) tr. by Charles S. Oldfield. 6 Jan 59 [4]p. (1 fig. omitted) 4 refs.
Order from SLA mi$1.80, ph$1.80 59-10335

Trans. of [Academie des Sciences, Paris] Comptes Rendus, 1949, v. 229, pt. 2. 1009-1011.

PHYSICS

*ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI (USSR) 1958, V. 35, NO. 2, P. 313-558 (Journal of Experimental and Theoretical Physics). [1959] 1v.
SOV-56-35-2-(1-60)/60.
Order from OTS $1.40, $7.50/6 mo. PB 141 052T-6
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

*ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI (USSR) 1958, V. 35, NO. 3, P. 561-830 (Journal of Experimental and Theoretical Physics). [1959] 1v.
SOV-56-35-3-(1-61)/61
Order from OTS $1.40, $7.50/6 mo. PB 141 052T-7
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

Brekhovskikh, L. M.
ON A PARTICULAR CASE OF SOUND PROPAGATION IN A HETEROGENEOUS MEDIUM. [1959] 6p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15106

Trans. of Akademiya Nauk SSSR. Doklady, 1952, v. 87, no. 5, p. 715-718.

Halbach, K.
MODEL-INDEPENDENT DESCRIPTION OF MODULATION EFFECTS IN NUCLEAR INDUCTION. [1959] 8p.
Order from ATS $9.90 ATS-79L29G

Trans. of Helv[etica] Phys[ica] Acta (Switzerland) 1956, v. 29, p. 37-46.

Kihara, Taro and Muto, Yoshio.
IMPERFECT GASES [AND] CONDENSATION PHENOMENA. [1950] 334p. F-TS-7093-RE; ATI-113 704.
Order from LC or SLA mi$11.10, ph$51.60 59-16789

Trans. of two books published by Tokyo U., Dec 48 and Sep 49.

Contents:
Imperfect Gases
Chap. I. The thermodynamics of imperfect gases
Chap. II. The statistical dynamics of imperfect gases
Chap. III. The force between molecules and the equation of state for gases
Chap. IV. The Maxwell-Boltzmann equation
Chap. V. The effective section area and dispersion of the molecular curve
Chap. VI. The migration of ions in an electric field
Chap. VII. Viscosity and thermal conductivity
Chap. VIII. Expansion and thermal expansion
Condensation Phenomena
Chap. I. The statistical mechanics of imperfect gases composed of single components
Chap. II. The theory of condensation
Chap. III. Mixed gases and their condensation phenomena
Chap. IV. A new method of statistical dynamics for a general system (1. Single-component system)
Chap. V. A new method of the statistical dynamics of a general system (2. Multi-component system)
Chap. VI. The statistical dynamics of a system with the field acting upon it externally

Tolstoy, N. A.
POSSIBILITY OF USING PULSE LAMPS FOR STUDYING THE RELAXATIONS OF LUMINESCENCE AND PHOTOCONDUCTIVITY, tr. by Carlo A. Bauman. [1958] 4p. 4 refs. T-2871.
Order from LC or SLA mi$1.80, ph$1.80 59-10911

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 2, p. 279-281.

Preliminary experiments showed that gas-discharge pulse lamps can be used for studying the kinetics of luminescence and photoconductivity by the τ-meter method (Doklady Akad. Nauk SSSR 58: 389, 1947; Uspekhi Fiz. Nauk 41: 44, 1950) and the condenser method (Physik. Z. 33: 209, 1932). The τ-meter method for studying the relaxation of luminescence of potassium uranyl sulfate permitted measurement of the τ for each band of the luminescence radiation of this compound separately. (The measuring scheme included an FEU-19 photoelectron multiplier, an IS-50 pulse lamp, a discharge condenser of 1,600 μf capacity and a 300-v potential.) Magnitudes of τ for all bands appeared to be equal. The accuracy appeared to be ±5%. The τ could be measured up to $2 \cdot 10^{-5}$ sec. The application of the condenser method to ZnS phosphors permitted the determination of a considerable condenser effect for long wavelengths particularly within the IR region ($\lambda > 900$ mu). The use of the condenser with 2 semitransparent electrodes (front and rear) permits distinguishing between the stimulated IR photoelectric effect (liberation of carriers trapped during the preliminary short-wavelength excitation) and the direct IR photoelectric effect.

Electricity and Magnetism

du Castel, F. and Misme, P.
THE ROLE OF PARTIAL ATMOSPHERIC REFLECTIONS IN THE EXPLANATION OF THE FIELD RECEIVED AT A GREAT DISTANCE. [1958] 5p. 2 refs.
Order from SLA mi$1.80, ph$1.80 59-10960

Trans. of Academie des Sciences, Paris. Comptes Rendus (France) 1958, v. 246 [no. 1] p. 82-84.

Hieronymus, H. and Weiss, H.
THE MEASUREMENT OF VERY SMALL MAGNETIC FIELDS BY MEANS OF HALL GENERATORS. [1958] [8]p. 4 refs. A. C. S. I. L. Trans. no. 1024.
Order from SLA mi$1.80, ph$1.80 59-10997

Trans. of Siemens Zeitschrift (West Germany) 1957 [v. 31] no. 8, p. 404-409.

A method was developed for measuring very small magnetic fields down to 10^{-5} oersteds by direct current operated Hall generators. An instrument based on the method was designed and constructed. The instrument had a noise level less than 0.1 microvolt.

Manenkov, A. A. and Prokhorov, A. M.
RADIOSPECTROMETER FOR THE OBSERVATION OF ELECTRONIC PARAMAGNETIC RESONACE IN THE MICROWAVE REGION. [1958] 21p. 9 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10886

Trans. of Radiotekhnika i Elektronika (USSR) 1956, v. 1, no. 4, p. 469-477.

Two types of radiospectroscopes for the observation of paramagnetic resonance in the microwave region and the separate assemblies for these radiospectrometers are described. The optimum operating conditions of the spectroscopes and the effect of dispersion on the observed shape of the absorption lines are investigated. The instances in which the effect of dispersion is negligible are shown.

Molecular Physics and Spectroscopy

Ivanov, A. P.
THEORETICAL INVESTIGATIONS OF THE BEHAVIOR OF LUMINESCENT RADIATION OF DISPERSED LUMINESCENT PARTICLES. [1959] [17]p. 2 refs. T-2868.
Order from LC or SLA mi$2.40, ph$3.30 59-15022

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 2, p. 225-235.

This paper discusses the intensity of luminescence of a layer by taking into account the boundary conditions on the surfaces of the scattering medium. For some special cases tables have been compiled for determining the intensity of the emitted luminescent energy by

use of the known optical parameters of the layer. Analysis of the effect of different constants of the medium on the behavior of luminescent radiation has been given. Problems for the determination of the optimum parameters of the layer at which the intensity of luminescence is maximum, were solved.

Mangini, Angelo.
OBSERVATIONS ON THE ABSORPTION SPECTRA IN THE NEAR ULTRAVIOLET OF A FEW ORGANIC SULFUR COMPOUNDS AND CORRESPONDING ELECTRON TRANSITIONS. [1959] [36]p. 81 refs.
Order from SLA mi$3.00, ph$6.30 59-15059

Trans. of Gazz[etta] Chim[ica] Ital[iana] 1958, v. 88, [no. 11] p. 1063-1080.

The present review is based on experimental results carried out at the Department of Industrial Chemistry of Bologna in part not previously published.

Prokof'ev, V. K.
MOST RECENT SPECTRAL APPARATUSES OF THE USSR. tr. by A. L. Monks. 2 Mar 59, 14p. 6 refs. (Includes foreign text)
Order from LC or SLA mi$2.40, ph$3.30
AEC-tr-3599

Trans. *Akad[emiya] Nauk SSSR. Izv[estiya]. Seriya Fiz[icheskaya] 1958, v. 22, no. 6, p. 737-741.

Spectroscopic apparatus developed since 1954 in the USSR are described. Diffraction lattices and replicas are used on a large scale in these devices. Photoelectric recording of the spectrum is used to a much greater extent than before.

Scalise, M[ario].
A COMPARISON OF "QUANTOMETERS" (QUANTITATIVE SPECTROMETERS) WITH SUCCESSIVE INTEGRATION AND THOSE WITH PARALLEL INTEGRATION FOR SPECTROCHEMICAL ANALYSIS (Confronto tra Quantometri a Integrazione Successiva e Quantometri a Integrazione Parallela per Analisi Spettrochimica). Aug 58 [8]p. TIL/T4893.
Order from SLA mi$1.80, ph$1.80 59-10097

Trans. of Metallurg[ia] Ital[iana] 1957, v. 49, no. 6, p. 479-482.

The Applied Research Laboratories' conventional spectrochemical apparatus (the quantometer) with direct readings, used for fixed analytical programs, is compared with a new spectrochemical apparatus (the quantograph) for variable analytical programs. The quantograph features (1) an arrangement of slit, mirrors, gratings, and receiving surfaces for obtaining a vertical image of the spectral lines at all points of the focal plane in all positions of the rotatable grating, and (2) the reduction to a minimum of abberations by the use of the Czerny-Turner mirror system. The time required for direct reading apparatus is about the same as that for classic spectrographic analysis.

Shirokshina, Z. V. and Suykovskaya, N. V.
PREPARATION OF INFRARED TRANSMITTING FILMS. [1959] 8p. 9 refs. T-2887.
Order from LC or SLA mi$1.80, ph$1.80 59-15025

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 1, p. 82-86.

The possibility of preparing infrared transmitting films by depositing easily hydrolyzed compounds from solution, on glass and crystal surfaces, has been investigated. Reflectance curves have been plotted for highly reflecting optical media (with refractive indices of 2.6 and 2.8) coated with films of various thicknesses and various refractive indices. Results have shown that titanium, germanium and antimony oxide films can be used for reducing the infrared reflectance within the 3 to 12 μ range.

Optics

Karasev, V. V. and Dergyanin, B. V.
APPLICATION OF A ROTATING POLARIZER TO THE STUDY OF THE STATE OF POLARIZATION OF REFLECTED AND SCATTERED LIGHT IN PARTICULAR FOR THE PURPOSE OF THE PRECISE MEASUREMENT OF THE THICKNESS OF THIN FILMS. [1959] 8p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15112

Trans. of Akademiya Nauk SSSR. Doklady, 1948, v. 62, p. 761-764.

Korolev, F. A. and Klement'eva, A. Yu.
METHODS OF PREPARING DIELECTRIC MIRRORS AND INTERFERENCE LIGHT FILTERS, AND A STUDY OF THEIR OPTICAL PROPERTIES, tr. by W. R. Eichler. [1958] 12p. 24 refs. T-2855.
Order from LC or SLA mi$2.40, ph$3.30 59-10186

Trans. of Moscow U. Vestnik (USSR) 1957, no. 3, p. 65-73.

Dielectric substances were evaporated in a 2-part high vacuum apparatus with optical control of the film thickness to obtain high quality dielectric mirrors and light filters. A monochromatic light was employed as an optical control to produce mirrors and light filters of different wavelengths. Changes in reflection of the light on a control glass were observed by a selenium cell with prisms placed inside or outside a Bell jar. The cell was connected to a reading instrument containing a galvanometer with 10^{-9} A/mm sensitivity, and the deflection was observed on a linear scale. The absorption of the film increased at high evaporation speeds because the substance decomposed, the evaporation dish atomized, and the vacuum deteriorated. Films obtained at a speed of 60 A/sec had an absorption much greater than films obtained at low vaporization speeds. Lowering the evaporation speed to 5 A/sec reduced the absorption of a quarter wave film of ZnS to 0.08%, and of cryolite and MgF_2 to 0.02-0.04%. Mirrors with 7 ZnS-cryolite layers absorbed about 0.04%. In a poor vacuum of 10^{-3} Hg, absorbing films were obtained. Time studies showed little change in the film properties. A uniform deposit without aggregates was formed by treating the surface

of the glass with a flow discharge before vaporizing. Non-uniformities in the film thickness did not affect mirrors, but light filters showed even small deviations in film thickness by a shift of the light filter peak in the spectrum. To prevent irregularities in film thickness from exceeding 1%, the diameter of the sample could not exceed 30 mm at a distance of 280 mm from the evaporation source.

Tagirov, R. B.
A METHOD OF MEASURING THE REFLECTION COEFFICIENT OF MIRRORS, tr. by Carlo A. Bauman. [1958] 3p. 4 refs. T-2870.
Order from LC or SLA mi$1.80, ph$1.80 59-10912

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 2, p. 278-279.

A simplification of Shefer and Matossi's method (Infrared Spectra, ONTI, 1935) for direct measurement of the reflection coefficient of mirrors is described, which is adapted to infrared spectrometers marketed by Soviet industry, specifically for the IKS-11.

Tovmasyan, G. M.
ON RAISING THE SENSITIVITY OF INTERFERENCE RADIO TELESCOPES. II. 20 Oct 58, 14p. 3 refs. T-138.
Order from SLA mi$2.40, ph$3.30 59-10494

Trans. of A[kademiya] N[auk] Arm[yanskoy] SSR [Yerevan]. Doklady, 1958, v. 26, no. 1, p. 11-20.

Results are presented of a detailed investigation of the advantages of the resonant accumulation of the point source radio emission being received.

Ziombrovskaya, Z. A.
DETERMINATION OF ILLUMINATION CONDITIONS AND VISUAL FATIGUE BY THE METHOD OF MEASURING VISIBILITY. 10 Apr 59, 7p (5 figs. omitted) 10 refs. JPRS: L-697-N.
Order from OTS $0.50 59-13316

Trans. of Gigiyena Truda i Professional'nyye Zabolevaniya (USSR) 1958, v. 2, no. 2, p. 36-41.

Solid State Physics

Arkhangelskaya, V. A.
INFRARED EMISSION BAND AND THE KINETICS OF SEMICONDUCTOR PROCESSES IN CADMIUM-SULFIDE IN THE TEMPERATURE REGION OF QUENCHING OF LUMINESCENCE. [1959] 3p. 5 refs.
Order from CCT $5.00 CCT-1248TT

Trans. of [Akademiya Nauk SSSR. Doklady, 1954, v. 100, no. 2, p. 233-236].

See Chem. Abst. 50: 9158c, 1956 or Sci. Abstr. 58A: 6939, 1955 for abstract of the original.

Arnold, H[einrich].
THE CRYSTALLIZATION OF TERYLENE IN THE SMALL ANGLE (X-RAY) DIAGRAM. [1959] 23p. 50 refs.
Order from SLA mi$2.70, ph$4.80 59-15065

Trans. of Kolloid-Z[eitschrift] (West Germany) 1958, v. 157, no. 2, p. 111-123.

Diverse pretreatment of amorphous terylene resulted in small-angle (X-ray) scattering that was varied continuously because of the formation of embryos (large regions of denser packing). The second order transition point of oriented terylene was strongly dependent on the external form and surface tension. Both the Volmer-Avrami crystallization theory (Kolloid Z. 98: 213, 1942 and J. Chem. Phys. 7: 1103, 1939; 8: 212, 1940; 9: 177, 1941) and the concept of the ideal parameter according to Hosemann (Z. Physik 128: 1, 1950 and Kolloid Z. 152: 45, 1957) were verified for terylene. Neither the particle formation factor nor the activation energy for auto diffusion will change when the sample is distorted except when IR spectroscopy shows a difference in the half-value time of crystallization. The average size of the crystalline regions perpendicular to the direction of stretch shows an anisotropy such that many more chains crystallize perpendicularly to the film plane than on the plane. Samples stretched at 100° and 193°C showed, in the wide-angle diagram, crystallization in the b-c lattice planes.

Ayrapetyants, S. V. and Efimova, B. A.
THERMOELECTRICAL PROPERTIES AND THE CHARACTER OF BONDS OF THE SYSTEM Bi_2Te_3 - Sb_2Te_3. [1958] [10]p. (1 fig. omitted) 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10765

Trans. of *[Zhurnal Tekhnicheskoy Fiziki] (USSR) 1958 [v. 28, no. 8, p. 1768-1774].

An analysis of the structure of Bi_2Te_3, Bi_2Se_3, Sb_2Te_3 indicated that there are 3 types of bond in Bi_2Te_3 and the alloy Bi_2Te_3 + Sb_2Te_3, and namely: the ionic and covalent bond and a weak residual type bonding. The thermoelectrical properties of the polycrystalline samples were studied and the formation of a superlattice was found to exist in solid solutions of the composition: 1/3 Bi_2Te_3 + 2/3 Sb_2Te_3 and 2/3 Bi_2Te_3 + 1/3 Sb_2Te_3. A method is suggested for the determining of the width of the forbidden band by aid of thermal e. m. f. measurements.

Baskin, M. L. and Semerchan, A. A.
GROWTH AND COALESCENCE OF CRYSTALS UNDER THE INFLUENCE OF IONIZING RADIATIONS. [1959] 3p.
Order from LC or SLA mi$1.80, ph$1.80 59-15266

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1958, [v. 28] no. 1, p. 69-70.

Borisov, S. V., Pavlov, P. V. and Belov, N. V.
A GRAPHIC METHOD FOR SOLVING THE FUNDAMENTAL HARKER-KASPER INEQUALITIES. [1958] 5p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10883

Trans. of *Kristallografiya [Moscow] (USSR) 1958, v. 3, no. 1, p. 90-92.

The following system of writing is suggested for cases where a large number of unitary amplitudes are investigated:

$$(U_H + U_K)^2 \left| \begin{array}{l} (1+U_{H+K}) \rightarrow (1+U_{H-K}) \\ (1-U_{H-K}) \rightarrow (1-U_{H-K}) \end{array} \right.$$

Sign relationships must be computed in the first quadrant only.

Chernikov, Yu. A. and Cherkashina, T. V.
ANALYSIS OF INTERMETALLIC ALLOYS.
18 Feb 59 [3]p. 7 refs. TC-5.
Order from LC or SLA mi$1.80, ph$1.80 59-14253

Trans. of *Zav[odskaya] Lab[oratoriya] (USSR) 1959, v. 25, no. 1, p. 26-27.

A method of determining each of the three metals was developed for the alloy Sb-Al-Ga.

Folberth, O. G. and Schillmann, E.
THE DOPING OF III-V COMPOUNDS WITH ELEMENTS FROM THE IV GROUP OF THE PERIODIC SYSTEM. [1958] 3p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-10742

Trans. of Z[eitschrift für] Naturforschung (West Germany) 1957, v. 12a [no. 11] p. 943-[944].

Experiments were conducted to prove the theory of H. Welker (Z. Naturforschung 7a: 744, 1952, which indicates that the kind of lattice positions substituted depended on the volume ratio of the compound components. The compounds GaSb, InP, InAs, and InSb were doped in the melt with Ge, Sn, and Pb, and the carrier concentration and type of conductivity were determined by Hall-effect measurements. Distribution coefficients were obtained from the concentration distribution along the length of the crystal, which was frozen from one end. Although the impurity was generally incorporated at the position of the component with the larger volume the results indicated that the impurity atom tended to prefer the position of the B^V component, even if the size of the covalent radius (CR) indicated it would go to the A^{III} position. The B^V position could be occupied if the CR of the impurity was slightly larger than that of the B^V element, but when the CR was larger than that of the B^V and smaller than the A^{III} component, the impurity went to the A^{III} position. If the impurity's CR was larger than that of the A^{III} element, and the CR of the A^{III} element was in turn larger than that of the B^V element, the impurity was not incorporated at all. In all components used, the bonding energy of the B^V component in the crystal was smaller than that of the A^{III} component, so the B^V component was more easily substituted. Values are tabulated for the segregation coefficients of the fourth group elements in the compounds investigated.

Gladyshevskiy, E. I. and Kripyakevich, P. I.
CRYSTALLINE STRUCTURE OF $MoBe_{12}$, WBe_{12}, $TaBe_{12}$ COMPOUNDS. [1959] [6]p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15015

Trans. of [*Kristallografiya, Moscow] (USSR) 1957, v. 2, no. 6 [p. 742-745].

A study was made to determine whether compounds analogous to those previously found (Doklady Akad. Nauk SSSR 104: 82, 1955) which possessed a $ThMn_{12}$-type structure exist in the Mo-Be, W-Be, and Ta-Be systems.

Gross, E. F.
AN IMPORTANT PROBLEM OF MODERN PHYSICS.
19 Dec 58, [15]p. TG-38.
Order from LC or SLA mi$2.40, ph$3.30 59-12477

Trans. of A[kademiya] N[auk] SSSR. Vestnik, 1958, v. 28, no. 10, p. 11-19.

A theoretical consideration of excitons in the crystal lattice.

Ioffe, A. F.
SEMICONDUCTORS (Poluprovodniki) tr. by David Kraus. Rept. on Contract AF 19(604)203. 15 June 54, [19]p.
Order from LC or SLA mi$2.40, ph$3.80 59-10233

Trans. of Nauka i Zhizn' (USSR) 1953, v. 20, no. 11, p. 25-29.

The properties and uses of semiconductors are described in laymen's terms.

Isupov, V. A.
THE GEOMETRICAL CRITERION OF THE PYROCHLORE TYPE STRUCTURE. [1958] 5p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10881

Trans. of *Kristallografiya [Moscow] (USSR) 1958, v. 3, no. 1, p. 99-100.

Mamonov, E. I.
PROGRESS OF SCIENTIFIC WORK ON ROCHELLE SALT ELECTRICITY. [1958] 5p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3526

Trans. of Priroda (USSR) 1958 [v. 47] no. 8, p. 113-115.

Recent developments in the field of piezoelectricity are described in general terms, with particular reference to the work of the second All-Union Conference on Piezoelectricity. Conference reports on studies of Rochelle salt during compression are mentioned without exact citation or comment.

Matejec, R.
KINETICS OF FORMATION AND RECOMBINATION OF FRENKEL DEFECT SITES IN SILVER HALIDE CRYSTALS. [1959] 23p. 9 refs. T-2883.
Order from SLA mi$2.70, ph$4.80 59-15024

Trans. of Z[eitschrift für] Physik (Germany) 1958, v. 151, no. 5, p. 595-612.

The formation and recombination of Frenkel defect sites (interstitial silver ions $Ag_{\bar{G}}^{+}$, and silver ion vacancies $Ag_{\bar{G}}^{-}$) are investigated theoretically in pure silver halide crystals. For various rates of cooling and heating, the temperature course of the defect site concentrations is calculated. Theoretical results are compared with experimental results.

Natta, G. and Corradini, P.
CRYSTAL STRUCTURE OF 1, 4-CIS-POLYBUTADIENE AND 1, 4-CIS-POLYISOPRENE (Über die Kristallstructuren des 1, 4-cis-Polybutadiens und des 1, 4-cis-Polyisoprens). [1958] [6]p. 6 refs. Tr57-2.
Order from SLA mi$1.80, ph$1.80 59-10683

Trans. of Angewandte Chemie (West Germany) 1956, v. 68, p. 615-616.

The crystal structure of butadiene polymers is described. The polymer investigated was rich in 1, 4-cis-groups by infrared measurements, and it had a lower melting temperature and greater mobility of the polymer chain than other crystalline stereoisomers. Filaments stretched 300 to 400% and cooled to -30° C. produced sharp characteristic fiber photographs with 50 reflexes. The monoclinic cell was reconstructed with the reciprocal lattice which had constants: $a = 4.60$ Å; $b = 9.50$ Å; $c = 8.60$ Å (fiber axis); $\beta = 109°$. A density of 1.01 was calculated on the basis of 4 monomer units in the cell. One chain of 2, which best agreed with the values of the elementary cell showed a center of symmetry and a sliding reflection plane. An excellent agreement was found between calculated and experimental intensities when carbon atoms were arranged in the following coordinates:

	X	Y	Z
(CH_2)	0.094	0.000	0.094
(CH)	0.041	0.133	0.184

1, 4-cis polybutadiene structure was compared with all other known crystalline polymers in the chain which contained a sliding reflection plane, and analogies were noted in the type of packing of the chains. Structural analogy of space packing of molecules between cis-polybutadiene and cis-polyisoprene was compared.

Opitz, Wolfgang.
SUPERCONDUCTION AND RESISTANCE OF THIN INDIUM LAYERS WITH LATTICE PERTURBATIONS AND ADDITIONS OF FOREIGH METALS (Supraleitung Dünner Indiumschichten mit Gitterstörungen). [1958] [25]p. 10 refs. M-6614.
Order from SLA mi$2.70, ph$4.80 59-10905

Trans. of Z[eitschrift] für Physik (Germany) 1955, v. 141 [no. 3] p. 263-276.

Indium layers were produced through condensation from the metal vapor. Their behavior with respect to resistance as well as superconduction, was investigated in dependence on the condensation temperature and layer thickness. With decreasing condensation temperature, lattice perturbations are frozen to an increasing extent; simultaneously with this, the critical temperature of superconduction rises from 3.37° to 4.2° K. Addition of some atom percents of Cu, Pd and Zn stabilizes particularly large perturbations that lead to critical temperatures around 4.5° K. The transition metals, Cr, Mn, and Fe, on the other hand, even in slight concentration, strongly reduce the critical temperature of indium. The results found correspond throughout to those obtained earlier for tin.

Ramer, P[aul] Strutt, M[ax] J. O., and Willisen, Friedrich K. von.
MEASUREMENTS OF THE GAUSS EFFECT OF VARIOUS SEMICONDUCTORA AT 10,300 AND 600 MEGACYCLES. [1958] 18p. 9 refs.
Order from SLA mi$2.40, ph$3.30 59-10874

Trans. of Archiv der Elektrischen Übertragung (West Germany) 1957, v. 11, no. 1, p. 1-7.

A checking of earlier theoretical results (L'Onde Elec. 30: 309-16, 1950 and Z. Naturforsch. 6a: 184-91, 1951) in regard to the frequency dependence of galvanomagnetic effects indicated that the premises, on which the formulas are based, do not apply to semiconductor materials. These formulas, therefore, cannot give real information about the frequency dependence. Measurements performed on six semiconducting plates (two of indium-arsenide, three of indium antimonide and one of germanium) showed a slight decrease of the galvanomagnetic effects at 10 mc a very distinct decrease at 300 and 600 mc with reference to comparison values at zero frequency.

Synorov, V. F.
SURFACE PROPERTIES OF SEMICONDUCTORS. 16 Oct 58, 9p. 11 refs. T-137.
Order from LC or SLA mi$1.80, ph$1.80 59-10501

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy. Fizika] (USSR) 1958, no. 4, p. 80-85.

Tsidil'kovskiy, I. M.
ON THE QUESTION OF THE IONIC AND HOMOPOLAR BONDS IN SEMICONDUCTORS, tr. by Morris D. Friedman. 21 Apr 59, 7p. 27 refs. TT-30
Order from LC or SLA mi$1.80, ph$1.80 59-16137

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1955, v. 102, no. 4, p. 737-740.

Vol'kenshtein, F. F.
PRESENT STATE OF THE ELECTRONIC THEORY THEORY OF CATALYSIS ON SEMICONDUCTORS. [1959] 19p.
Order from ATS $26.05 ATS-62L29R

Trans. of Uspekhi Khim[ii] (USSR) 1958, v. 27, no. 11, p., 1304-1320.

Zhuze, P. and Kontorova, T. A.
ON CORRELATION BETWEEN THE HARDNESS AND HEAT CONDUCTIVITY OF NON-METAL CRYSTALS. [1958] [9]p. 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10766

Trans. of *[Zhurnal Tekhnicheskoy Fiziki] (USSR) 1958, [v. 28, no. 8, p. 1727-1733].

Theoretical Physics

Abrikosov, A. A.
PROBLEMS IN SUPERCONDUCTIVITY. [1958] 17p.
Order from LC or SLA mi$2.40, ph$3.30 59-10519

Trans. of Akademiya Nauk SSSR. Vestnik, 1958 [v. 28] no. 4, p. 30-36.

Bogolyubov, N. N.
PROBLEMS OF THE THEORY OF SUPERFLUIDITY OF BOSE AND FERMI SYSTEMS. [1958] 11p. (11 formulas omitted) 8 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-10407

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 19[5]8, no. 4, p. 25-29.

Hausen, Helmuth.
EXACT COMPUTATION OF THE COMPLETE TEMPERATURE COURSE UP TO THE REGENERATOR ENDS, IN THE CASE OF VERY WELL CONDUCTING STORAGE MASS (Exakte Berechnung des Vollständingen Temperaturverlaufs bis zu den Regeneratorenden bei Sehr Gut Leitender Speichermasse). [1958] [42]p. 6 refs. (foreign text included).
Order from SLA mi$3.30, ph$7.80 SCL-T-9

Trans. of mono. Wärmeübertragung im Gegenstrom, Gleichstrom und Kreuzstrom (Heat Transfer in Counter-current, direct current and cross-current) [Berlin] 1950, p. 329-345.

The equations derived in the preceding chapter (not included) with regard to the eigen function of the zeroth order permit the calculation of the fundamental vibration of a regenerator during a counter-current. Those equations afford an insight into the temperature changes which take place in the interior parts of long regenerators. The phenomena in the regenerator ends deviate considerably from this temperature course as a result of the influence of the higher eigen functions (harmonic vibrations). These phenomena also are calculated with the greatest possible precision. A heat transfer coefficient referring to the mean stone temperature essentially facilitates the computation without affecting appreciably the result of the calculation.

Kostarev, A. I.
ON THE ABSORPTION OF X-RAYS BY METALS. [1958] 32p. 32 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-10971

Trans. of Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1939, v. 9, no. 3, p. 267-279.

A critical study is made of the theory of absorption of X-rays by a metal to the following approximations: free electrons (Sommerfeld) and almost free electrons (Brillouin). The inadequacy of these approximations is established. The theory of the fine structure of the X-ray absorption spectrum of a metal derived by Kronig (Z. Physik 70: 317, 1931 and 75: 191, 1932) appears to be insubstantial on the basis of its direct quantitative refinement. The fine structure is, obviously, dependent on the distortion of the wave of the electron ejected by neighboring lattice atoms of the metal.

Spitsyn, A. V. and Vanilov, V. S.
RECOMBINATION CAPTURE OF NON-BASE CARRIERS IN N-TYPE GERMANIUM BY LATTICE DEFFECTS FORMED DURING FAST NEUTRON RADIATION. 17 Nov 58 [4]p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3466

Trans. of Zhurn[al] Eksper[imental'noy] i Teoret-[icheskoy] Fiz[iki] (USSR) 1958, v. 34[no. 2]p. 530-531.

Tabulated data are presented of fast neutron irradiations of n-type germanium. The irradiations were made to validate a formula (taken from a paper by Fan and Lark-Horovitz) for calculating the average number of displaced Ge atoms per single neutron scattering. The formula had been used in a previous estimation (Zhurn. Eksper. Teoret. Fiz. 32: 702, 1957) of the cross-section magnitude of the recombination capture, θ, of non-ground carriers (sic: holes?) by disturbances of the crystalline structure of n-type Ge, produced by fast neutron irradiation.

Wave Propagation

Braude, S. Ya.
PROPAGATION OF ULTRASHORT WAVES IN A MOUNTAINOUS LOCALITY. 15 May 59, 9p. (1 fig. omitted) 10 refs. JPRS: 1562-N.
Order from OTS $0.50 59-13498

Trans. of Ukrayins'kyy Fizychnyy Zhurnal (USSR) [1958] v. 3, no. 2, p. 246-253.

Brekhovskikh, L. M.
ON THE TSUNAMI AND OBSERVATIONS OF SUPER LONG RANGE PROPAGATION OF SOUND IN THE OCEAN. 3 Mar 59, 6p. 3 refs. JPRS: L-677-N.
Order from OTS $0.50 59-13259

Trans. of [Akademiya Nauk SSSR]. Sovet po Seysmologii. Byulleten', 1956, no. 2, p. 8-11.

Fedorov, A. A.
ASYMPTOTIC SOLUTION OF THE PROBLEM OF PLANE ELECTROMAGNETIC WAVE DIFFRACTION BY A PERFECTLY CONDUCTING SPHERE. 17 Mar 59, 19p. 6 refs. TF-14.
Order from LC or SLA mi$2.40, ph$3.30 59-14901

Trans. of *Radiotekh[nika] i Elektr[onika] (USSR) 1958, v. 3, no. 12, p. 1451-1462.

An asymptotic solution is given of the problem of plane electromagnetic wave diffraction by a perfectly conducting sphere for the field in the wave zone with large values of the parameter ka (k is the wave number, a is the radius of the sphere). Graphs are given for two values of the parameter ka (ka = 5, 10). A comparison of the asymptotic formulas with the exact solution shows that satisfactory agreement, which improves rapidly as ka increases, is obtained for ka = 5.

Keylis-Borok, V. I.
CONTRIBUTION TO THE QUESTION OF THE RESONANT PROPERTIES OF INTERFERENCE WAVES IN A LAYER (K Voprosu o Rezonansnykh Svoystvakh Interferentsionnykh Voln v Sloye). [1958] [13]p. 10 refs. F-TS-9306/V.
Order from LC or SLA mi$2.40, ph$3.30 59-14098

Trans. of Akademiya Nauk SSSR. Geofizicheskaya Institut. Trudy [1954] no. 22(149) p. 50-58.

Resonant properties of sinusoidal interference waves of the Naymark wave type due to an expansion-compression center in a layer lying between half spaces are discussed. The paper supplements an earlier report (Akademiya Nuak SSSR. Geofizicheskaya Institut. Trudy 20: 147, 1953) in which the stationary interference waves arising under the action of a concentrated force in a layer between 2 half spaces are described.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

AKADEMIYA NAUK SSSR. OTDELENIYE TEKHNICHESKIKH NAUK. IZVESTIYA, 1958, NO. 6, P. 3-160 (News of the Academy of Sciences of the USSR, Department of Technical Sciences). [1959] 1v. SOV-24-58-6-(1-35)/35.
Order from OTS $1.00, $5.50/6 mo. PB 141 019T-4
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

AKADEMIYA NAUK URSR, KIEV. DOPOVIDI, 1958, NO. 11, P. 1153-1274 (Reports of the Academy of Sciences UKR SSR). [1959] 1v. SOV-21-58-11-(1-28)/28.
Order from OTS $0.60, $3.50/6 mo. PB 141 016T-10
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NAUKA I ZHIZN' (USSR) 1958, [V. 25] NO. 1, P. 1-80 (Science and Life). [1959] 1v. SOV-25-59-1-(1-51)/51.
Order from OTS $0.70, $4.00/6 mo. PB 141 020T-11
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

NAUKA I ZHIZN' (USSR) 1958 [V. 25] NO. 12, P. 1-77 (Science and Life). [1959] 1v. SOV-24-58-12-2-(1-40)/40.
Order from OTS $0.70, $4.00/6 mo. PB 141 020T-10
Foreign $0.95, $5.50/6 mo

Consists of abstracts in English.

NOTED SOVIET SCIENTISTS. 28 Nov 58, 12p. JPRS (NY) L-529.
Order from OTS $0.50 59-11122

Trans. of articles from selected Soviet publications.

Short sketches, usually papers in commemoration of a birthday anniversary, are presented of the life and works of Aleksey Aleksandrovich Zkikharev (veterinarian), Boris Mikhaylovich Teplov (psychologist), Pavel Ivanovich Koloskov (geographer), Sergey Nikolayevich Rozanov (pediatrician), Nikolay Ivanovich Osinovskiy (pediatrician), and Iosif Zakharovich Shtokalo (mathematician).

SCIENTIFIC INFORMATION REPT. 8 May 59, 102 p.
Order from OTS $2.75, $28.00/year PB 131 891T-21

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

SCIENTIFIC INFORMATION REPT. 22 May 59, 102p.
Order from OTS $2.75, $28.00/year PB 131 891T-22

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

Lapatukhin, V. S.
CHECKING THE WEAR RESISTANCE OF THE SURFACE OF OFFSET PLATES. 8 Apr 59, 36p. (9 figs. omitted) 29 refs. JPRS: L-721-N.
Order from OTS $1.00 59-13366

Trans. of [Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Poligraficheskoy Promyshlennosti i Tekhniki] Sbornik Nauchnykh Rabot (USSR) 1956, v. 7, p. 183-215.

Nesmeyanov, A.
SCIENCE AND THE BUILDING OF COMMUNISM. 6 Mar 59, 27p. JPRS: 1314-N.
Order from OTS $0.75 59-13261

Trans. of Kommunist, Moscow (USSR) 1959 [v. 36] no. 1, p. 53-69.

Nesmeyanov, A. N.
WORK OF ACADEMY OF SCIENCES USSR. [1958] [78]p.
Order from OTS $2.00 59-11249

Trans. of Akademiya Nauk SSSR. Vestnik, 1957, no. 2, p. 3-42.

The work is described of the Academy in the fields of mathematics, physics, astronomy, engineering sciences, chemistry, biology, geology and geography, natural resources, social sciences, and publication. The strength and weaknesses of these undertakings are mentioned. Indexes are included of subjects, names of personnel, organizations, and geographic locations mentioned in the report.

Shchedrovitskiy, S. S.
METHODS AND APPARATUS FOR CALIBRATING AND CHECKING ACCELEROMETERS. 22 Apr 59, 15p. (4 figs. omitted) 10 refs. JPRS: L-752-N.
Order from OTS $0.50 59-13445

Trans. of *Izmeritel'naya Tekhnika (USSR) 1958, no. 6, p. 87-93.

BOOK REVIEWS

The following book reviews can be ordered by number from OTS for 50 cents. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and a detailed table of contents. The length of each review is indicated at the end of the entry.

BR-SOV/292
Moscow. Vyssheyetekhnicheskoye uchilishche. Kafredra "Mashiny i tekhnologiya prokatki i volocheniya"
Prokatnyye stany i tekhnologiya prokatki; sbornik statey (Rolling Mills and Methods of Rolling; Collection of Articles) Moscow, Mashgiz, 1957. 125 p. (Series: Moscow. Vyssheye tekhnicheskoye uchilishche. /Trudy/ vyp. 80) 4,000 copies printed.

Theoretical and experimental studies done by the scientific workers of the department of "Machinery and methods of rolling and drawing" of Moscow Higher Technical School. 2p.

BR-SOV/1404
Levinson, Ye. M., B. G. Gutkin, A. P. Dyatchenko, and Ye. I. Vladimirov
Polucheniye polostey i otverstii v metalle elektroiskrovym sposobom (Electrospark Method of Cutting Cavities and Holes in Metals) Moscow, Mashgiz, 1952. 93 p. (Series: Bibliotechka elektrotekhnologa, No. 4) 6,000 copies printed.

Basic principles of the electrospark machining of holes and cavities in metals. 2p.

BR-SOV/1412
USSR Ministerstvo vysshego obrazovaniya
Spravochnik dlya postupayushchikh v vysshiye uchebnyye zavedeniya SSSR v 1958 g. (Handbook for Persons Entering USSR Higher Educational Institutions in 1958) Moscow, Sovetskaya nauka, 1958. 271 p. 300,000 copies printed.

Admission requirements, examination schedules, and lists of Soviet universities and higher educational institutions with their primary field of interest. 3p.

BR-SOV/1427
Novikov, Mikhail Pavlovich
Osnovy sborki Mashin (Fundamentals of Machine Assembly) Moscow, Mashgiz, 1957. 343 p. 25,000 copies printed.

A textbook for students of machine assembly at technical schools. 4p.

BR-SOV/1428
Baron, N. M., Ye. D. Volova, I. M. Yegorov, E. I. Kvyat, K. P. Mishchenko, A. M. Ponomareva, A. A. Ravdel', and G. I. Semenov
Prakticheskiye raboty po fizicheskoy khimii (Practical Work in Physical Chemistry) Leningrad, Goskhimizdat, 1957. 263 p. 11,000 copies printed.

A textbook covering the theoretical and practical aspects of experimental physical chemistry. 7p.

BR-SOV/1430
Ivashchenko, Nikolay Nikolayevich
Avtomaticheskoye regulirovaniye; teoriya i elementy sistem (Automatic Control; Theory and Elements of Systems) Moscow, Mashgiz, 1958. 531 p. 15,000 copies printed.

A discussion of the general theory and the elements of systems of automatic control and an examination of the control devices for basic physical quantities most often applied in production processes. 8p.

BR-SOV/1432
Shnayderman, Iosif Berkovich
Tabulyatory T-4M i T-4MI; elementy avtomaticheskogo upravleniya i metody kommutatsii (T-4M and T-4MI Tabulating Machines; Elements of Automatic Control and Methods of Switching) Moscow, Metallurgizdat, 1958. 199 p. 2,000 copies printed.

A book intended for design engineers dealing with automatic calculation. 3p.

BR-SOV/1437
Spravochnik metallista v pyati tomakh, t. 4, (Metals Engineering Handbook in Five Volumes, Vol 4) Moscow, Mashgiz, 1958. 778 p. 50,000 copies printed.

A handbook useful to technicians and engineers working in the field of machine design and production. 5p.

BR-SOV/1439
Spravochnik metallista v pyati tomakh, t. 3, kn. 1 (Metals Engineering Handbook in Five Volumes, Vol. 3, bk. 1) Moscow, Mashgiz, 1958. 560 p. 50,000 copies printed.

A reference book for technicians and engineers working in the field of machinery design and in production. 7p.

BR-SOV/1446
Luzin, Nikolay Nikolayevich
Sobraniye sochineniy. t. 2: Deskriptivnaya teoriya mnozhestv (Collected Works. Vol 2: Descriptive Theory of Sets) Moscow, Izd-vo AN SSR, 1958. 744 p. 3,000 copies printed. Sponsoring Agency: Akademiya nauk SSSR.

The second volume of the collected works of N. N. Luzin, is intended for mathematicians. 4p.

BR-SOV/1455
Krasnosel'skiy, Mark Aleksandrovich, and Yakov Bronislavovich Rutitskiy
Vypuklyye funktsii i prostranstva Orlicha (Convex Functions and Orlicz Spaces) Moscow, Fizmatgiz, 1958. 271 p. (Series: Sovremennyye problemy matematiki) 5,000 copies printed.

The book presents the theory of many classes of convex functions and its applications. 4p.

BR-SOV/1457
Gershun, Andrey Aleksandrovich
Izbrannyye trudy po fotometrii i svetotekhnike (Selected Works on Photometry and Illuminating Engineering) Moscow, Fizmatgiz, 1958. 548 p. (Series: Biblioteka russkoy nauki; matematika, mekhanika, fizika, astronomiya) 2,500 copies printed.

This compilation includes photometry; the "light field" theory; and illumination engineering. 5p.

BR-SOV/1461
Akademiya nauk Gruzinskoy SSR, Tiflis. Institut prikladnoy khimii i elektrokhimii
Elektrokhimiya margantsa, t. 1 (Electrochemistry of Manganese, Vol. 1) Tbilisi, Izd-vo Akad. nauk Gruzinskoy SSR, 1957. 518 p. 2,000 copies printed.

A collection of articles presenting work accomplished recently in the field of manganese electrochemistry. The two main objectives of research were: new industrial methods for the preparation of high-purity manganese, and the utilization of low-grade ores and manganese wastes. 3p.

BR-SOV/1462
Kurchman, Boris Semenovich
Tochnoye lit'ye po vyplavlyayemym modelyam (Precision Investment Casting) Moscow, Oborongiz, 1958. 171 p. (Series: Bibliotechka rabochego aviatsionnoy promyshlennosti) 7,000 copies printed.

A description of the process of precision investment casting, its history, existing methods and their accuracy, and specific features of the process. 3p.

BR-SOV/1464
Voronov, Parfeniy Yefremovich, and Dmitriy Andreyevich Yasenev
Uralmashzavod--pervenets tyazhelogo mashinostroyeniya (The Ural Heavy Machinery Plant, Oldest in Heavy Machinery Building) Moscow, Mashgiz, 1958. 114 p. (Series: Iz istorii mashinostroyeniya na Urale, vyp. 6) 5,000 copies printed.

A description of the construction and development of the Plant. Intended for engineer, technical, and scientific personnel and students, it may also be useful to propagandists and agitators. 2p.

BR-SOV/1479
USSR Ministerstvo vysshego obrazovaniya
Kuda poyti uchit'sya; spravochnik dlya postupayushchikh v vysshiye i sredniye spetsial'nyye uchebnyye zavedeniya [tekhnikumy, uchilishcha, shkoly] Moskvy i Moskovskoy oblasti v 1958 godu (Where to Study: Reference Manual for Prospective Students of Secondary, Special, and Higher Educational Schools [Tekhnikums, Institutes, and Schools] in the City and the Oblast of Moscow in 1958) 12th ed. [Moscow] Izd-vo "Moskovskaya pravda," 1958. 294 p. 40,000 copies printed.

Admission requirements and entrance examinations for students entering higher educational institutions on a full or part time basis. 9p.

BR-SOV/1489
Pen'kov, S. I.
Raschet dopuskayemykh napryazheniy v sudovom mashinostroyenii (Calculation of Allowable Stresses for Ship Machinery) [Leningrad] Sudpromgiz, 1951. 253 p. 7,000 copies printed.

The book presents information necessary to a designer on the basic types of loads, mechanical properties of materials and on the design, production and operational factors affecting the strength of finished machine parts. 3p.

BR-SOV/1493
Teumin, Isay Il'ich
Ul'trazvukovyye kolebatel'nyye sistemy (Ultrasonic Vibrating Systems) Moscow, Mashgiz, 1959. 330 p. 5,000 copies printed.

Theoretical principles and engineering design of ultrasonic bar-type vibrating systems which are the main elements of the nonelectrical portion of ultrasonic equipment. 4p.

BR-SOV/1497
Akademiya nauk SSSR. Institut nauchnoy i tekhnicheskoy informatsii
Metallurgiya SSSR, 1917-1957, t. 1 (Metallurgy of the USSR, 1917 - 1957, Vol. 1) Moscow, Metallurgizdat, 1958. 745 p. 3,000 copies printed.

A collection of articles covering practical and theoretical developments in Soviet metallurgy during the last 40 years. 11p.

BR-SOV/1499
Teplotekhnicheskiy spravochnik, t. 2 (Heat Engineering Handbook, Vol. 2) Moscow, Gosenergoizdat, 1958. 672 p. 40,000 copies printed.

This volume deals with thermo-electric power plants, heating and ventilating systems, industrial plant thermal equipment, heat measuring instruments and automatic control of thermal processes. 3p.

BR-SOV/1502
Murav'yev, Ivan Mikhaylovich, Ruben Samsonovich Andriasov, Shamil' Kashafovich Gimatudinov, Galina Leonidovna Govorova, and Vladimir Tikhonovich Polozkov.
Razrabotka i ekspluatatsiya neftyanykh i gazovykh mestorozhdeniy (Development and Exploitation of Oil and Gas Deposits) Moscow, Gostoptekhizdat, 1958. 495 p. 6,000 copies printed.

A survey of modern scientific concepts of the physics of formations, the theory of petroleum, gas and gas-condensate field development, and the technology of oil and gas production. 6p.

BR-SOV/1503
Akademiya nuak SSSR. Institut poluprovodnikov
Poluprovodniki v nauke i tekhnike, t. 2. (Semiconductors in Science and Technology, Vol 2) Moscow, Izd-vo AN SSSR, 1958. 658 p. 17,000 copies printed.

A collection of articles on semiconductor devices, and various semiconductor materials. 5p.

BR-SOV/1507
Strel'bitskaya, Aleksandra Ivanovna
Issledovaniye prochnosti tonkostennykh sterzhney za predelom uprugosti (Investigations of the Strength of Thin-walled Rods Beyond the Elastic Limit) Kiyev, Izd-vo AN USSR, 1958. 294 p. 3,000 copies printed.

An investigation of elasto-plastic and ultimate conditions of thin-walled bars under torsion and bending stresses and under the simultaneous action of torsion and bending. 3p.

BR-SOV/1510
Topchiyev, Aleksandr Vasil'yevich, and Boris Abramovich Krentsel'
Poliolefiny--novyye sinteticheskiye materialy (Polyolefins, New Synthetic Materials) Moscow, Izd-vo AN SSSR, 1958. 100 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 15,000 copies printed.

The raw material used in the manufacture of polyolefins, methods of production, properties of polyolefins, and their uses are discussed in this book. 2p.

BR-SOV/1512
Komarov, Boris Sergeyevich
Elektropitaniye predpriyatiy provodnoy svyazi. (Power Supply for Wire Communication) 2nd ed., rev. and enl. Moscow, Svyaz'izdat, 1958. 351 p. 11,000 copies printed.

A textbook for students of communciations tekhnikums. 5p.

BR-SOV/1515
Sergeyev, Nikolay Petrovich, and Moisey Samuilovich Feygenson
Elektricheskaya kontaktnaya svarka (Electric Resistance Welding) 2nd ed., rev. and enl. Moscow, Mashgiz, 1958. 286 p. 15,000 copies printed.

The book describes basic methods of electric resistance welding and welding machinery used in the Soviet industry. 4p.

BR-SOV/1516
Kirichenko, Vasiliy Stepanovich
Vodookhlazhdayemyye kokili (Water-cooled Chill Molds) Moscow, Mashgiz, 1958, 95 p. 6,000 copies printed.

The book is intended for technical personnel of casting shops and design bureaus developing new plants and techniques for reducing costs, increasing efficiency and facilitating molding operations in machine-building establishments using mass and lot production. 2p.

BR-SOV/1517
Malbiyev, Rafael' Issakovich
Prichal'nyye sooruzheniya neftebaz (Jetties of Petroleum Bulk Plants) Leningrad, Gostoptekhizdat, 1958. 165 p., 1,400 copies printed.

A textbook for engineers and technicians engaged in the transportation and storage of petroleum products. 2p.

BR-SOV/1519
Semenchenko, Dmitriy Ivanovich
Novoye v voprosakh teorii profilirovaniya i izmereniya chervyachnykh zuboreznykh frez; iz opyta sovmestnoy raboty VNII i MIZ (New Trends in the Theory of Gear Hob Tooth Form Design and Measurements; Combined Experience of VNII and MIZ All-Union/Institute for Scientific Research on Instruments and Moscow Instrument Plant/) Moscow, Tsentr. byuro tekhn. informatsii ENIMS, 1958. 65 p. 1,500 copies printed.

Intended for toolmakers, technicians, engineers, and designers. 2p.

BR-SOV/1520
USSR. Gosudarstvennyy nauchno-tekhnicheskiy komitet
Avtomatizatsiya khimicheskikh i koksokhimicheskogo proizvodstv; sbornik statey (Automation of the Chemical and By-product Coking Industries) Moscow, Metallurgizdat, 1958. 377 p. 4,000 copies printed.

A collection for industrial engineers and technologists interested in the state of industrial automation and organizations concerned with the multifarious automation problems of the chemical industry. 2p.

BR-SOV/1526
Snarskiy, Aleksey Antonovich, and Modest Vladimirovich Markov
Linii avtomatiki, telemekhaniki i svyazi na zheleznodorozhnom transporte (Automation, Remote Control, and Communication Lines in Railroad Transportation) Moscow, Transzheldorizdat, 1958. 389 p. 7,000 copies printed.

A textbook intended to give the students the necessary theoretical and practical information necessary for planning, constructing and operating these facilities. 8p.

BR-SOV/1530
Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut "Teploproyekt" Teploizolyatsionnyye materialy i izdeliya; katalog (Heat-insulating materials and products; a catalog) Moscow, Gosstroyizdat, 1957. 1 Vol (unpaged). 10,000 copies printed.

A list for persons interested in the physical characteristics of various types of heat-insulating materials. 2p.

BR-SOV/1531
Akademiya nauk SSSR. Institut tekhniko-ekonomicheskoy informatsii
Poluavtomat dlya frezerovaniya spiral'nykh kanavok na valikakh. Poluavtomat dlya frezerovaniya dvukh tortsov. Prisposobleniye dlya frezerovaniya shlitsev v rez'bovykh probkakh. Prisposobleniye dlya frezerovaniya kozhukha (Semiautomatic Machine for Milling Spiral Grooves on Cylinders. Semiautomatic Machine for Milling Two Faces. Device for Milling Recesses in Threaded Plugs. Device for Milling Guards) Moscow, Izd-vo AN SSSR, 1956. 17 p. (Series: Peredovoy proizvodstvenno-tekhnicheskiy opyt. Ser. 11. Frezernyye i zuboreznyye raboty. No. T-56-188/4) 2,900 copies printed.

A brief description of the machines and devices mentioned. 1p.

BR-SOV/1533
Suyarov, Dmitriy Il'ich
Profilirovka i shlifovka listoprokatnykh valkov (Body Form Design and Grinding of Plate Mill Rolls) Sverdlovsk, Metallurgizdat, 1958. 60 p. 2,700 copies printed.

Methods of body design are examined. A description of roll grinder construction and the kinematics of crowning devices is presented. 2p.

BR-CZECH/1543
Rones, Josef, and Miroslav Jaros
Chemicka uprava povrchu nezeleznych kovu (Chemical Surface Treatment of Nonferrous Metals) Prague, SNTL, 1958. 270 p. 1,900 copies printed.

The book is concerned with the chemical cleansing of surfaces of nonferrous metals, i.e., degreasing, pickling, and washing. 7p.

BR-SOV/1545
Zorokhovich, Aleksandr Yefimovich, and Anatoliy Zakharovich Libman
Opyt remonta elektrooborudovaniya passazhirskikh vagonov (Repairing Electrical Equipment of Railroad Passenger Cars) Moscow, Transzheldorizdat, 1958. 90 p. 5,000 copies printed.

The experience of the Electrical Workshop of the Car Depot of Moscow III Station, Northern Railroad in the repair and overhaul of basic units of electrical equipment of steel passenger cars. 3p.

BR-SOV/1550
Gurvich, Venyamin Betsalelevich, and V. V. Kaplan
Malomaslyanyye podstantsionnyye vyklyuchateli i privody k nim (Low-Oil-Content Substation Circuit Breakers and Their Drives) Moscow, Gosenergoizdat, 1958. 131 p. 10,000 copies printed.

An explaination of the general principles of the construction and operation h-v circuit breakers. 2p.

BR-SOV/1551
Shifrin, Daniil Moiseyevich
Parovyye dvigateli (Steam Engines) Moscow, Uchpedgiz, 1958. 158 p. (Series: Biblioteka shkol'nika) 35,000 copies printed.

The development, construction, and operation of steam engines and turbines. Intended for senior students of secondary schools. 2p.

BR-SOV/1552
Kuvshinskiy, Vladimir Vladimirovich
Frezerovaniye (Milling Operations) 2nd ed., rev. and enl. Moscow, Mashgiz, 1958. 408 p. 45,000 copies printed.

The book deals with the basic principles and theories of milling operation and the tools and machinery used in the Soviet machine industry. 4p.

BR-SOV/1558
Moscow. Dom nauchno-tekhnicheskoy propagandy im. R. E. Dzerzhinskogo
Sovremennyye splavy i ikh termicheskaya obrabotka (Contemporary Alloys and Their Heat Treatment) Moscow, Mashgiz, 1958. 329 p. 12,000 copies printed.

A collection of 28 articles aimed to acquaint the reader with modern practice in the heat treatment of steels. 3p.

BR-CZDCH/1566
Nemecek, Vaclav
Ceskoslovenska letadla (Czechoslovak Airplanes) [Prague] Nase vojsko, 1958. 239 p. (Series: Kniznice letectvi, sv. 22) 10,000 copies printed.

A comprehensive story of Czechoslovak aviation during the last forty years (1919-1958) and a reference book for all the civil and military aircraft ever built in Czechoslovakia. 3p.

BR-POL/1567
Konczykowski, Stanislaw
Obliczanie sieci elektronenergetycznych, t. II. (Design of Electric Power Networks; vol. 2) Warsaw, Panstwowe Wydawnictwo Naukowe, 1958. 486 p. 4,200 copies printed.

This volume is devoted entirely to the theory of electric power transmission and to the design of long lines and electric power circuits. 4p.

BR-SOV/1571
Shumilovskiy, Nikolay Nikolayevich, and Lel' Vladimirovich Mel'ttser
Primeneniye yadernykh izlucheniy v ustroystvakh avtomaticheskogo kontrolya tekhnologicheskikh protsessov (Application of Nuclear Radiation in Automatic Control of Production Processes) Moscow, Gosenergoizdat, 1958. 95 p. (Series: Biblioteka po avtomatike, vyp. 1) 13,000 copies printed.

A discussion for engineers, technicians, and senior students of vuzes who are not specializing in nuclear physics and who intend to work in the field of complex automatic process control. 2p.

BR-SOV/1574
Kyyiv. Ukrayins'kyy naukovo-doslidnyy instytut metaliv
Vprovadzhennya novoyi tekhniky i tekhnologiyi na metalurhiynykh zavodakh Ukrayiny; zbirnyk, t. 3 (Introduction of New Techniques and Technology in Ukrainian Metallurgical Plants; Collection of Articles, Vol. 3) Kyyiv, Derzhtekhvydav URSR, 1958. 192 p. 1,000 copies printed.

Intended for metallurgists employed in rolling and slabbing operations. 2p.

BR-SOV/1579
Savel'yev, I. V.
Atomnaya fizika; konspekt lektsiy (Nuclear Physics; Synopsis of Lectures) Moscow, Mosk. inzhenerno-fizicheskiy in-t, 1957. 107 p. Number of copies printed not given.

For students or other persons seeking orientation in the basic concepts, principles and theories of nuclear phenomena. 2p.

BR-SOV/1580
Krinetskiy, Ivan Ivanovich
Osnovy avtomaticheskogo regulirovaniya khimicheskikh protsessov (Principles of Automatic Control of Chemical Processes) Kiyev, Gostekhizdat, 1958. 233 p. 4,000 copies printed.

A textbook describing the construction and operating principle of automatic control devices and some technological processes of the chemical industry. 3p.

BR-SOV/1584
Katsman, Yuriy Abramovich
Voprosy teorii mnogorezonatornykh klistronov (Problems in the Theory of Multicavity Klystrons) Moscow, Svyaz'izdat, 1958. 175 p. 6,500 copies printed.

Useful to research and development engineers working with microwave tubes. 3p.

BR-SOV/1588
Davydov, Aleksandr Sergeyevich
Teoriya atomnogo yadra (Theory of the Atomic Nucleus) Moscow, Fizmatgiz, 1958. 611 p. 12,000 copies printed.

A revised and enlarged edition of lectures delivered by the author at the Physics Department of Moscow State University im. Lomonosov. 7p.

BR-SOV/1591
Kozak, Filipp Grigor'yevich, and Dmitriy Mikhaylovich Ushakov
Avtomaty dlya rezki keramicheskikh materialov (Automatic Machines for Cutting Ceramic Materials) Kiyev, Mashgiz, 1958. 141 p. 3,000 copies printed.

The book describes automatic machines used for cutting and stacking raw brick, roof tile, and building blocks. 3p.

BR-SOV/1597
Zavolokina, Z. I.
Magnitnyye elementy v tsifroyykh vychislitel'nykh ustroystvakh (Magnetic Elements in Digital Computers) Moscow, Gosenergoizdat, 1958. 118 p. 11,000 copies printed.

Intended for engineering and technical personnel having some knowledge of digital computer techniques. 2p.

BR-SOV/1599
Kutateladze, Samson Semenovich and Veniamin Mironovich Borishanskiy
Spravochnik po teploperedache (Handbook on Heat Transfer) Leningrad, Gosenergoizdat, 1958. 414 p. 25,000 copies printed.

Intended for those specializing in the various fields of thermodynamics. 13p.

BR-SOV/1602
Fomichev, Petr Markovich
Finansirovaniye bureniya neftyanykh i gazovykh skvazhin (Financing Oil and Gas Well Drilling) 2nd ed., rev. and enl. Moscow, Gostoptekhizdat, 1958. 182 p. 2,000 copies printed.

The book describes the financial organization of oil and gas surveying and drilling operations. 1p.

BR-SOV/1604
Afanas'yev, Vasiliy Vladimirovich
Konstruktsii vyklyuchayushchikh apparatov vysokogo napryazheniya (Design of High-Voltage Switchgear) Leningrad, Gosenergoizdat, 1959. 574 p. 8,500 copies printed.

Intended for engineers and technicians engaged in designing, developing, and operating h-v switchgear and for students specializing in h-v equipment construction. 4p.

BR-SOV/1605
Loladze, Teymuraz Nikolayevich
Iznos rezhushchego instrumenta (Wear of Cutting Tools) Moscow, Mashgiz, 1958. 355 p. 6,500 copies printed.

The book deals with phenomena occurring in the zone of contact between the cutting tool and the machined metal. 3p.

BR-SOV/1611
Vyshemirskiy, Mikhail Mikhaylovich
Formovshchik (Mold Maker) Moscow, Mashgiz, 1958. 210 p. 12,000 copies printed.

The book reviews modern casting techniques for cast iron, steel, and nonferrous metals. 2p.

BR-SOV/1616
Yatskevich, S. I.
Mashina dlya ispytaniya metallov na ustalost' pri vysokikh temperaturakh model' Ya-8M (Machine for Fatigue Testing of Metals at High Temperatures, Model Ya-8M) Moscow, Otdel nauchno-tekhn. informatsii, 1957. 16 p. 500 copies printed.

An Instruction Manual on the use of a machine to test metal fatigue at high temperatures. 2p.

BR-SOV/1622
Kaznevskiy, Viktor Pavlovich
Aerodinamika v prirode i tekhnike (Aerodynamics in Nature and Engineering) 2nd ed., enl. Moscow, Uchpedgiz, 1958. 135 p. (Series: Biblioteka shkol'nika) 17,000 copies printed.

The book presents in popular form the rudiments for aerodynamics and contains numerous examples. 2p.

BR-SOV/1637
Akademiya nauk SSSR. Kompleksnaya antarkticheskaya ekspeditsiya.
Opisaniye ekspeditsii na dizel'-elektrokhode "Ob', "1955-1956 gg. (Description of the Expedition Aboard the Diesel-electric Ship "Ob'" 1955-1956) Moscow, Izd-vo AN SSSR, 1958. 237 p. 2,000 copies printed.

The report includes and account of the first trip; the aims and problems involved; and the establishment of an observatory at Mirnyy. 5p.

BR-SOV/1639
Polietilen nizkogo davleniya (Low-pressure Polyethylene) Leningrad, Goskhimizdat, 1958. 90 p. (Series: Novyye plasticheskiye massy) 10,000 copies printed.

The booklet describes a new material: polyethylene produced at low pressures. 2p.

BR-SOV/1659
Akademiya nauk Kazakhskoy SSSR, Alma-Ata
Issledovaniye fizicheskikh osnov rabochego protsessa topok i pechey (Investigation of the Physical Bases of Operational Processes of Combustion Chambers and Furnaces) Alma-Ata, Izdat AN Kazakhskoy SSR, 1957. 369 p. 800 copies printed.

Twenty-nine articles on experimental and theoretical investigations of different physical phenomena which constitute an integral part of the complex operational processes of modern combustion engineering equipment. 4p.

BR-SOV/1663
Akademiya nauk SSSR. Komitet po geodezii i geofizike.
Tezisy dokladov na XI General'noy assambleye Mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza. Mezhdunarodnaya assotsiatsiya seysmologii i fiziki nedr zemli (Abstracts of Reports Submitted to the XI General Assembly of the International Union of Geodesy and Geophysics. The International Association of Seismology and Physics of the Earth's Interior) Moscow, 1957. 102 p. /Parallel texts in Russian and English/ 1,500 copies printed.

This collection of articles deals with the structure and composition of the Earth and phenomena related thereto. 3p.

BR-SOV/1665
Khamrabayev, Ibragim Khamrabayevich
Magmatizm i postmagmaticheskiye protsessy v Zapadnom Uzbekistane (Magmatics and Postmagmatic Processes in Western Uzbekistan) Tashkent, Izd-vo AN Uzbekskoy SSR, 1958. 471 p. 1,000 copies printed.

Intended for industrial geologists and mining engineers. 5p.

BR-SOV/1669
Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti
Analiticheskiy kontrol' proizvodstva v azotnoy promyshlennosti, vyp. 3: Kontrol' na gazoduvnoy stantsii i v otdeleniyakh ochistki i razdeleniya koksovogo gaza (Analytical Production Control in Nitrogen Industry. pt. 3: Controls in gas-blowing stations and shops for purification and separation of coke gas) Moscow, Goskhimizdat, 1957. 143 p. 3,000 copies printed.

For workers in analytical laboratories of nitrogen plants and students in chemical engineering institutes and technical schools. 4p.

BR-SOV/1678
Rodionov, Nikolay Aleksandrovich
Gidrologiya ust'yevoy oblasti Dona (Hydrology of the Region Around the Mouth of the Don River) Moscow, Gidrometeoizdat (otd-nie), 1958. 94 p. 800 copies printed.

For hydrologists specializing in the study of estuaries and engineers engaged in the design and construction of hydraulic projects in these areas. 2p.

BR-SOV/1677
Akademiya nauk SSSR. Komitet po geodezii i geofizike.
Soobshcheniye o nauchnykh rabotakh po geodezii; predstavlyayetsya v Mezhdunarodnuyu assotsiatsiyu geodezii k XI General'noy assableye Mezhdunarodnogo geofizicheskogo i geofizicheskigo soyuza (Report on Scientific Works on Geodesy; presented to the International Association of Geodesy at the 11th General Assembly of the International Union of Geodesy and Geophysics) Moscow, Izd-vo AN SSSR, 1957, 36p. 1,500 copies printed.

A general review of the development and state of geodetic work in the USSR. 1p.

BR-SOV/1681
Orlov, Pavel Mikhaylovich
Osnovy geodezii; zemlemeriye (Fundamentals of Geodesy; Surveying) 3d ed. Moscow, Sel'khozgiz, 1957. 247 p. (Series: Uchebniki i uchebnyye posobiya dlya sel'skokhozyaystvennykh tekhnikumov) 25,000 copies printed.

This textbook provides complete coverage of practical problems in surveying, especially of cases that are frequently encountered by agricultural specialists. 4p.

BR-SOV/1685
Akademiya nauk SSSR. Komitet po geodezii i geofizike.
Tezisy dokladov na XI General'noy assambleye Mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza. Mezhdunarodnaya assotsiatsiya meterologii (Abstracts of Reports at the 11th General Assembly of the International Union of Geodesy and Geophysics. The International Association of Meteorology) Moscow, 1957. 38 p. /Parallel texts in Russian and English or French/ 1,500 copies printed. No additional contributors mentioned.

These reports cover various subjects in the field of meteorology. 2p.

BR-SOV/1690
Sharova, Valeriya Yakovlevna
Chislo dney s osadkami razlichnoy velichiny na territorii Yevropeyskoy chasti SSSR i Kavkaza (Number of Days With a Given Amount of Precipitation in the European Part of the USSR and in the Caucasus) Leningrad, Gidrometeoizdat, 1958. 142 p. 1,000 copies printed.

This study describes a method of processing climatological observations and plotting them on maps. 2p.

BR-SOV/1693
Lebedev, Vsevolod Leonidovich
Sluchaynyye protsessy v elektricheskikh i mekhanicheskikh sistemakh (Random Processes in Electrical and Mechanical Systems) Moscow, Fizmatgiz, 1958. 176 p. 10,000 copies printed.

A discussion of stationary and non-stationary random processes in linear and inertialess nonlinear systems with single and multiple inputs and outputs. 3p.

BR-SOV/1699
Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk
Issledovaniya po elektrokhimii vodnykh rastvorov i rasplavov i amal'gamnoy metallurgii (Research on the Electrochemistry of Water Solutions, Fusions and Amalgam Metallurgy) Alma-Ata, Izd-vo AN Kaz. SSR, 1958. 122 p. (Series: Its: Trudy. t. 3) 1,300 copies printed.

The amalgam method of obtaining thallium from lead powder, the electrolysis of sulfate solutions of zinc and the impoverishment of waste slag during nickel production are described in these reports. 2p.

BR-SOV/1715
Grigor'yev, P. F.
Issledovaniye iznosa detaley aviatsionnogo dvigatelya s pomoshch'yu radioaktivnykh izotopov (Investigating the Wear of Aircraft Engine Components by Means of Radioactive Isotopes) Moscow, AN SSSR, 1956. 12 p. (Series: Informatsiya o nauchno-issledovatel'skikh rabotakh. Tema 21, No. I-56-118) 1,670 copies printed.

Intended for efficiency experts and engineering-technical workers of industrial establishments as well as for the personnel of scientific-research, design and construction organizations. 2p.

BR-SOV/1719
Leningrad. Glavnaya geofizicheskaya observatoriya
Metodika meteorologicheskikh nablyudeniy (Methods of Meteorological Observation) Leningrad. Gidrometeoizdat, 1958. 55 p. (Series: Its: Trudy, vyp. 86) 1,200 copies printed.

This issue discusses the methodology of meteorological, actinometric and gradient measurements and the processing of such data. 2p.

BR-SOV/1720
Leningrad. Glavnaya geofizicheskaya observatoriya.
Voprosy razrabotki meteorologicheskikh priborov (Problems in the Development of Meteorological Instruments) Leningrad, Gidrometeoizdat, 1958. 49 p. (Series: Its: Trudy, vyp. 83) 1350 copies printed.

Descriptions of new instruments and problems encountered in their development. 2p.

BR-SOV/1731
Leningrad. Glavnaya geofizicheskaya observatoriya
Voprosy klimatologii (Problems in Climatology) Leningrad, Gidrometeoizdat, 1958. 66 p. (Series: Its Trudy, vyp. 84) 1,300 copies printed.

Five articles dealing with such problems as humidity transfer, macrodiffusion and the interlatitudinal transfer of heat. 2p.

BR-SOV/1732
Leningrad. Glavnaya geofizicheskaya observatoriya
Metodika meteorologicheskikh nablyudeniy (Methodology of Meteorological Observations) Leningrad, Gidrometeoizdat, 1956. 153 p. (Series: Its: Trudy, vyp. 61 /123/) 1,400 copies printed.

Scientific articles on the methods of meteorologic observations and on the procedure of testing meteorological instruments. 2p.

BR-SOV/1738
Mel'nikova, Tat'yana Nikolayevna
Bibliotechnaya obrabotka geograficheskikh kart; opredeleniye chislennykh masshtabov (Library Processing of Geographical Maps; Determination of Numerical Scales) Moscow, Izd-vo AN SSSR, 1958. 82 p. illus., biblio. 5,000 copies printed.

Practical information on the basic types of map projections with illustrations. 2p.

BR-SOV/1743
Ryleyev, Gennadiy Sergeyevich
Pamyatka teplovoznoy brigade (Handbook for Diesel-Electric Locomotive Crews) 3d ed., enl. Moscow, Transzheldorizdat, 1958. 74 p. (Series: Rabota zheleznykh dorog v zimnikh usloviyakh) 16,000 copies printed.

Detailed instructions for the protection of the locomotive against the effects of frost, snow, and moisture. 3p.

BR-SOV/1765
Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi
Poluprovodnikovaya elektronika (Semiconductor Electronics) Moscow, Gosenergoizdat, 1959. 222 p. 13,950 copies printed.

A collection of lectures on the operation of semiconductor devices. 4p.

BR-SOV/1779
Akademiya nauk SSSR. Institut geografii.
Ispol'zovaniye topograficheksikh kart pri geograficheskikh issledovaniyakh. (Use of Topographic Maps in Geographical Exploration) Moscow, Izd-vo AN SSSR, 1958, 118 p. 2,000 copies printed.

A collection of papers given at the Interdepartmental Conference on Topographic Maps called by the Institute of Geography, Academy of Sciences, USSR in 1955. 2p.

TRANSLATIONS IN PROCESS BY GOVERNMENT AGENCIES

FOR 100 PASSENGERS (MODIFICATION OF THE TU-104 AIRPLANE).
Grazhdanskaya Aviatsiya (USSR) 1958, no. 7, p. 21-23.

HANDBOOK ON ELECTRIC COMMUNICATIONS. VOL. 8. RADIO COMMUNICATION.
Russian mono. Inzhenerno-Tekhnicheskiy Sprovochnik po Elektrosvyaz, 1958, 500p.

IMMEDIATE TASKS IN THE DEVELOPMENT OF AUTOMATION.
Priborostroyeniye (USSR) 1958, no. 12, p. 1-2.

MECHANICAL AND CHEMICAL MODIFICATIONS AND POLYMER SYNTHESIS.
Chemische Technik (East Germany) 1959, v. 11, no. 1, p. 13-14.

NEW ACHIEVEMENT OF SOVIET AIRCRAFT ENGINEERING.
Sovetskaya Aviatsiya, 1957, no. 261 (2819), p. 2.

NEWS OF SCIENCE AND TECHNOLOGY: IS THE PHOTON ROCKET FEASIBLE?
Fizika v Shkole (USSR) 1957, no. 6, p. 16-17.

THE PRESENT STATUS OF THE SCIENTIFIC RESEARCH WORK IN THE FIELD OF INCREASING THE MANUFACTURE OF TIRES AND ECONOMICAL STATUS OF TIRE PRODUCTION.
German rept. Gegenwartige Stander Wissenschaftlichen Forschungsarbeiten am Gebiete der Steigerung der Reifenbeschaffenheit und des Okonomischen Niveaus der Teifenproduktion, 90p.

PROGRESS MADE IN THE CHEMISTRY OF COMPLEX COMPOUNDS.
Chemische Technik (East Germany) 1959, v. 11, no. 1, p. 12-13.

RATE OF SCALE FORMATIONS IN METALS AND ALLOYS (PART 2).
Russian mono. Skorost Okalinoobrazovaniya na Metallakh i Splavakh (Chast 2) 1957, 240p.

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Chemische Technik (East Germany) 1959, v. 11, no. 1, p. 14-15.

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Uspekhi Fizicheskikh Nauk (USSR) 1958, v. 65, no. 4, p. 551-591.

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TABLES OF ELECTRONICS, ION PHYSICS AND ELECTRON MICROSCOPY.
German mono. Tabellen der Elektronenphysik, Ionenphysik und Übermikroskopie, 1956, v. 1 and 2, 1368p.

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TECHNOLOGY OF THE HEAT TREATMENT OF AUTOMOBILE PARTS.
Russian mono. Tekhnologiya Termicheskoy Obrabotki Detaley Avtomobilya, 1958. 263p.

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Grazhdanskaya Aviatsiya (USSR) no. 11, p. 5-7.

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SOVIET SATELLITES AND RADIO ELECTRONICS.
Radio (USSR) 1958, no. 1, p. 3-5.

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Russian mono. Termoelektrichestvo, 1957, 57p.

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Russian mono. Keramika v Mashinostroyenii, 1958, p. 24-31.

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Mlody Technik (Poland) 1959, no. 1, p. 2-4.

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[Lvov U. Uchenye Zapiski.] (USSR) 1954, v. 32, no. 2, p. 70-72.

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Russian mono. Infrakrasnye Luchi v Voyennom Dele, 1958, p. 57-74.

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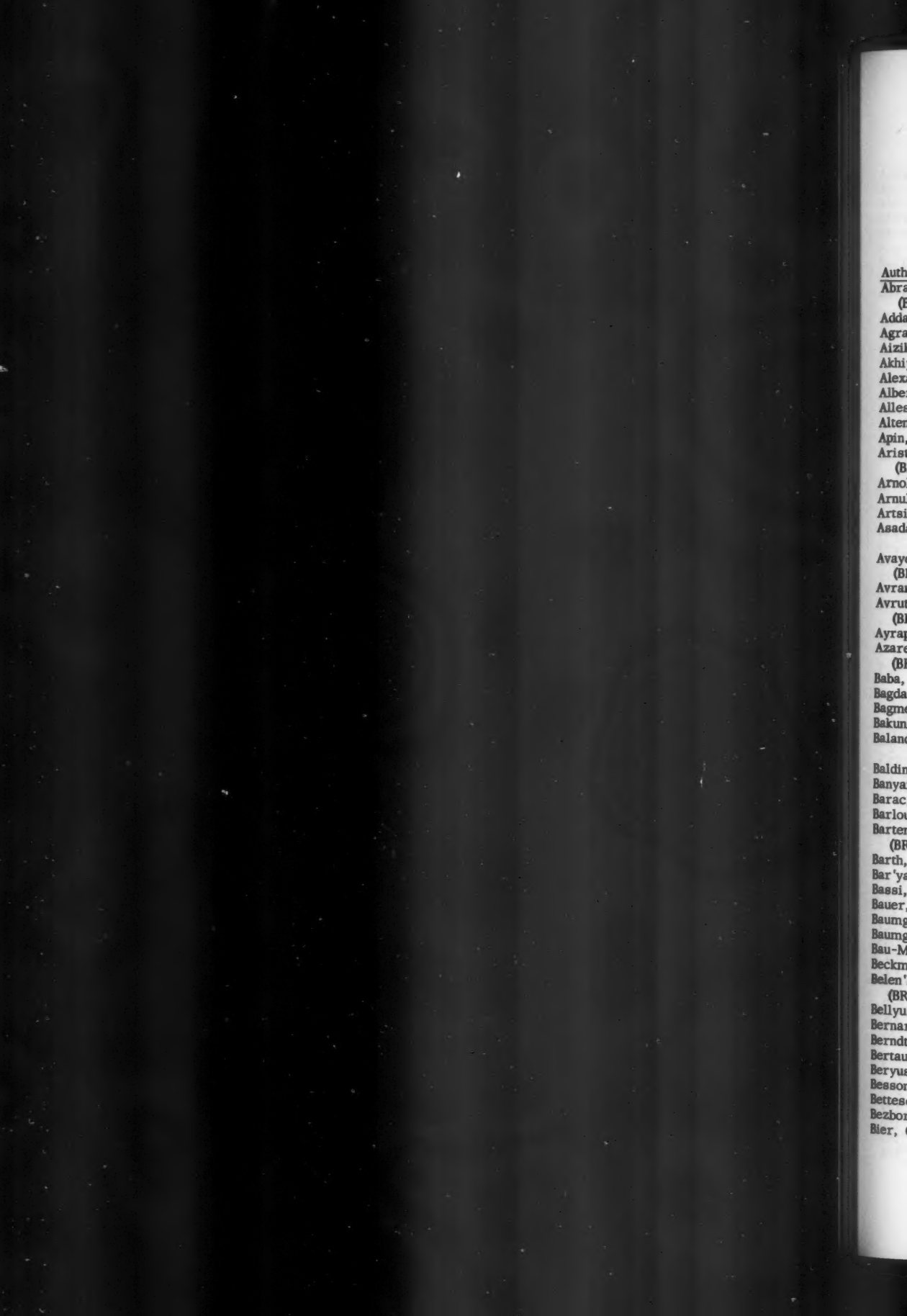

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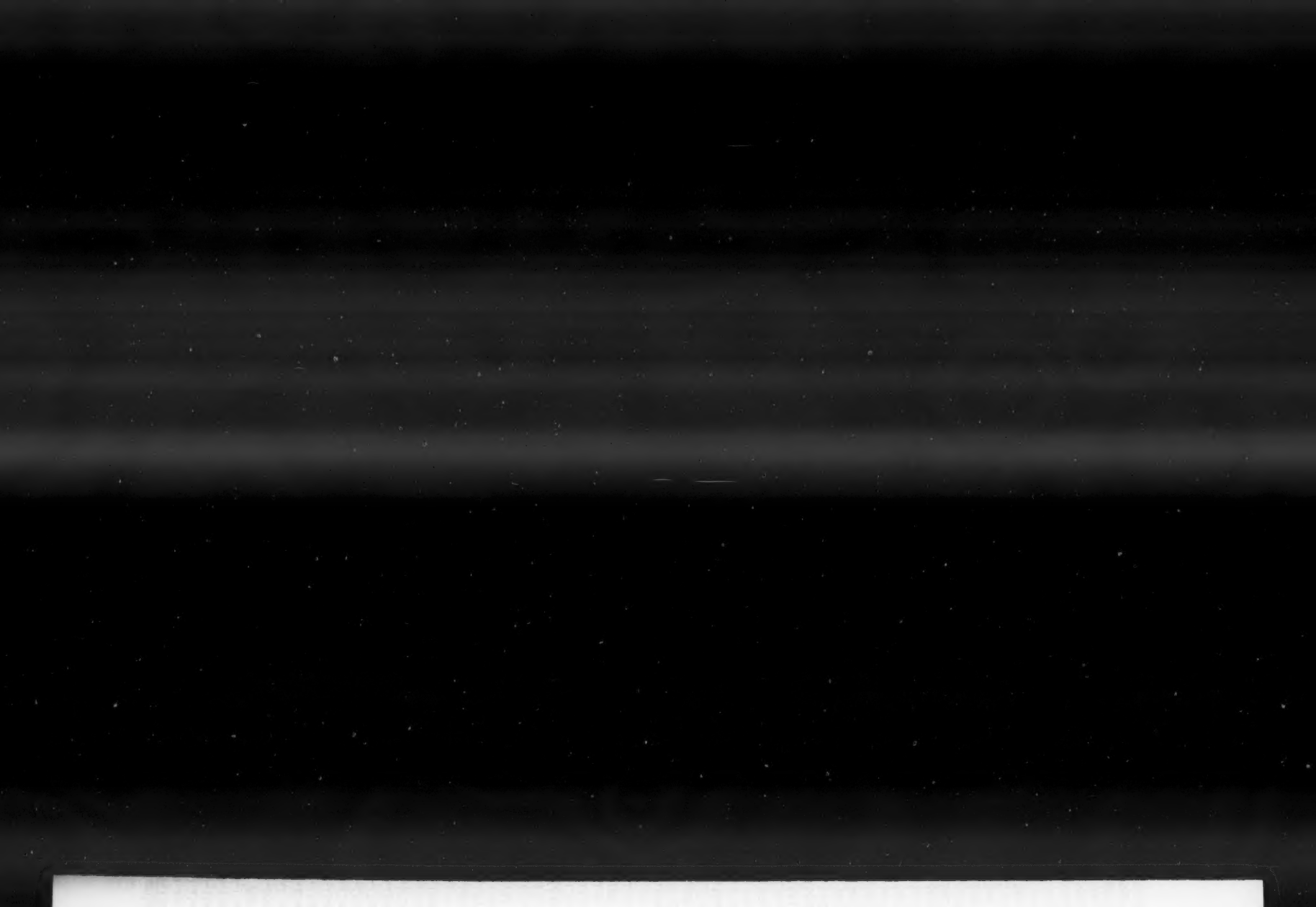
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